

# PROCEEDINGS

of the

## American Society

of

## Civil Engineers

INSTITUTED 1852

VOL. 56

AUGUST, 1930

No. 6

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## SOCIETY AFFAIRS

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# AMERICAN SOCIETY OF CIVIL ENGINEERS

## PROCEEDINGS

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### SOCIETY AFFAIRS

#### A NEW SOCIETY PUBLICATION

What amounts to a fundamental change in the Society's publication policy is about to take place. Briefly stated, it consists in the addition of a second monthly publication of an entirely distinct type supplementing the present *Proceedings*. In scope, in form, and in content, it will differ from anything the Society has previously undertaken.

Needless to say, the matter has received the intense study of the Publication Committee and of the Board of Direction. The final decision of approval at the Sacramento Board Meeting, in April, was taken only after a thorough examination of the facts and prospects presented.

Perhaps the best analysis of the situation in brief form can be indicated through the medium of the memorandum presented by the Publication Committee to the Board of Direction on which the final decision was based. After several months' study the Committee reported its findings, in part, as follows:

"(1) That the publication policy should be materially changed in order to present to the membership in more attractive form a large proportion of the material now issued.

"(2) That better opportunity should be provided for presenting material dealing with the administrative and professional activities of the Society.

"(3) That to make possible these objects, it is necessary to issue publications as follows:

(a) *Proceedings* in substantially its present form to contain the more highly technical material and that which is of most value for reference purposes.

(b) A journal under the title *Civil Engineering* to contain those papers of a more readable character, items relat-

ing to Society activities, and other material of general appeal to the membership.

(c) *Transactions* in substantially its present form to contain papers and discussions from *Proceedings*, possibly some papers from *Civil Engineering*, and *Memoirs*.

"(4) That *Civil Engineering* should carry a substantial volume of advertising which it is reasonably certain within a short time will pay the additional cost of the new plan and probably later a large proportion of the entire publication expenses.

"(5) That the Society's policy should be to maintain unequalled editorial independence, which the experience of other Societies indicates can be done.

"(6) That *Civil Engineering* should be 9 by 12 in. in size, to conform to the requirements of advertising material.

"(7) That this change in publication policy will greatly increase the interest of the members in the publications and activities of the Society.

"These findings are the result of a thorough study of the successful experience of other professional Societies and a consideration of the advice of experts in this field."

Quick to see the valuable possibilities of the proposal, the Board authorized its adoption and prosecution forthwith. Accordingly, extensive preparations were immediately put under way, taking as an objective the publication of the new magazine, *Civil Engineering*, beginning in the fall or early winter. It is hoped that the magazine itself will realize in large part the glowing possibilities of additional service to the Society and the Profession at large.

### PHEBE HOBSON FOWLER AWARDS

At the Cleveland Convention of the Society on Wednesday, July 9, a particularly interesting part of the program was the awarding of prizes under the Fowler Awards. The Professional Prize was awarded as follows:

First Prize, a gold-bronze medallion and an engraved certificate, to Arthur W. Berresford, Esq., in recognition of his particularly efficient administration of American Engineering Council during the two years of his incumbency as its President.

Second Prize, a silver medallion and an engraved certificate, to J. Vipond Davies, M. Am. Soc. C. E., in recognition of his accomplishments as Chairman of a Committee of the Society which developed the Report on Charges and Method of Making Charges for Professional Services. No third prize was awarded. Similar prizes were awarded once previously in 1929 to Leonard Chase Wason, M. Am. Soc. C. E. (first prize); Lewis Buckley Stillwell, M. Am. Soc. C. E. (second prize); and Clarence Francis Bell, Esq. (third prize).

The Architectural Award this year went to the following:

First Prize, Morris Goodkind, M. Am. Soc. C. E., for the design of the Raritan River Bridge, New Brunswick, N. J.

Second Prize, Charles M. Spofford, M. Am. Soc. C. E., for the design of the Lake Champlain Bridge.

Third Prize, G. F. Burch, M. Am. Soc. C. E., for the design of the Dixon Springs Bridge, Dixon Springs, Ill.

In 1929, these prizes were awarded to Gustav Lindenthal, Hon. M. Am. Soc. C. E. (first prize); John Dickson Stevenson, M. Am. Soc. C. E. (second prize); and Edward Lowrey Woodruff, M. Am. Soc. C. E. (third prize).

### SPRING MEETING— SACRAMENTO, APRIL, 1930

The attendance at the various events at Sacramento is rather a remarkable commentary on the wide interest in the technical matters considered as well as the sound judgment of the men who planned and carried through that program.

#### Meetings

It has sometimes been maintained that the amount of conversation in the back of meeting rooms or in the corridors is a direct indication of dullness

of papers. If so, the practically complete absence of these annoyances at Sacramento set a new high level of skillful presentation of, and sustained interest in, the Technical Sessions.

For the two days preceding the general meeting the Board of Direction was exceedingly busy, while the Regional Meetings Conference got away to a fine start on Tuesday afternoon and picked Tacoma for the Annual Convention on July 8 to 10, 1931. The delegates to this Conference—representatives from Local Sections in the Western Region—discussed at length the requirements for good meetings and other affairs of interest to Sections. An abstract of these interesting details is being prepared for distribution to all Local Sections.

The Student Chapter Conference was also rather remarkable in view of impending examinations at the Universities. Thirty-five representatives from four schools, together with several Faculty Sponsors, held an enthusiastic session on Tuesday, and afterward were dinner guests of the Sacramento Section at the banquet of the California Sewage Works Association.

At the Wednesday general meetings and the Thursday Technical Division sessions the attendance was unusually full, and will be found enumerated elsewhere.

#### Excursions and Entertainments

On Friday morning, a large group of members attended the dedication of the Judah Memorial, which was conducted under the auspices of the Society at the request of the Southern Pacific Railroad.

Following the dedication, the visitors enjoyed the hospitality of the California Transportation Company on a steamboat ride down the river, with luncheon served on board. These four and one-half hours passed very pleasantly and Captain Anderson, President of the Company, was cheered to the echo as a very generous host.

On Saturday, more than 300 went by special train to the site of the Suisun Bay Bridge, and were shown over the work and entertained at luncheon by the staffs of the contracting companies. The visitors were taken by boat to the different parts of the job. Others went on trips to inspect the Salt Springs, Pardee, and Calaveras Dams, the whole trip covering two days, and involving an overnight stay at a construction camp as guests of the Pacific Gas and Electric Company.



The purely social events were fully patronized. The dinner and dance on Wednesday was a brilliant affair, the striking feature of the dance being that all seemed to be taking an active part on the floor of the ball room. Everybody seemed to know everybody else, and the atmosphere was decidedly cordial.

On Thursday evening, the men had a Smoker at the Elks' Club characterized by rare good-fellowship, good singing, and a masterful as well as highly entertaining address on early California history by Dr. Du Four, Dean of California Teachers College.

#### Ladies Entertained

Then, too, the ladies were entertained almost continuously, and visiting engineers were nearly forced to the point of making appointments in order to see their wives. A reception and tea at the Crocker Art Gallery—almost without precedent in the history of that famous collection—a Garden Tea at the home of Mrs. George G. Pollock, an evening of bridge at the hotel, were a few of the high points of their entertainment. Sightseeing trips, shopping tours, and many other parties filled the week.

The members and their wives from Sacramento, San Francisco, Los Angeles, and the other neighboring cities, may take well-deserved pride in having done so much to assure a perfect meeting.

#### Attendance at Meetings

Credit for a finely attended meeting goes to the Sacramento Local Section. In this respect the count speaks for itself, approximately as follows:

Main Meeting (Wednesday) 475; Highway Division (Thursday morning and afternoon) 125; Irrigation Division (Thursday morning) 250; Surveying and Mapping Division (Thursday afternoon) 125; Structural Division (Thursday afternoon) 300; Dinner and Dance (Wednesday evening) 410; Smoker (Thursday evening) 400; Sacramento River Excursion (Friday afternoon) 450; and Excursion to Suisun Bay Bridge (all day Saturday) 310.

The total registration was about 730, of whom about 185 were ladies.

### PROGRESS ON GOVERNMENT HYDRAULICS LABORATORY

After years of discussion by engineers and legislators, official action has finally been taken by Congress to institute a National Hydraulic Research Laboratory, during May of the current year. Consid-

erable progress has been made to crystallize the ideas that have formerly been held by many students of these problems.

#### Eminent Consultants

The new Laboratory will be an integral part of the U. S. Bureau of Standards under Dr. George K. Burgess, Director. Many outstanding figures in hydraulic engineering will be identified on an Advisory Committee which will co-operate in the conduct of the Laboratory. The list of experts chosen for this important function include John R. Freeman, Past-President, Am. Soc. C. E., a life-long student of hydraulic problems; William B. Gregory, M. Am. Soc. C. E., Professor of Experimental Engineering at Tulane University; Sherman M. Woodward, M. Am. Soc. C. E., Professor of Mechanics and Hydraulics, at the State University of Iowa; Lewis F. Moody, Consulting Engineer, of Philadelphia, Pa.; Ely C. Hutchinson, M. Am. Soc. C. E., Editor of *Power*; B. R. Van Leer, Assistant Secretary of American Engineering Council; J. P. Dean, Representative from the Office of the Chief of Engineers, War Department; S. H. McCrory, M. Am. Soc. C. E., Chief of the Division of Agricultural Engineering, U. S. Bureau of Public Roads; N. C. Grover, M. Am. Soc. C. E., Chief Hydraulic Engineer for U. S. Geological Survey; and E. W. Lane, M. Am. Soc. C. E., of the U. S. Reclamation Bureau. It will be seen that the Committee thus includes expert personnel representing both civilian practice and Government Departments interested in these problems.

#### Plans for New Building

Already considerable progress has been made. Messrs. Freeman and Gregory expect to spend considerable time during the summer in an intensive study of practice in Europe, particularly in Berlin, Munich, and Zurich. In addition, Mr. Freeman has perfected a tentative plan for details of the new Laboratory, which will be established at the Bureau of Standards in Washington at an initial cost of \$350 000.

It is planned that the building shall be completed in about a year and begin to function in about two years. It will be especially arranged for investigating the physical laws which define the motion of water and for studying, by means of models and other special equipment, engineering problems arising in connection with measurement, control, and disposition of large quantities of water and the utilization of water for irrigation and power purposes. The conservation of the

water used and the practicability of the arrangements are notable features of the proposed plan.

#### Scope of Use

According to Dr. Burgess:

"The hydraulic laboratory has become an absolute necessity to hydraulic engineers who are engaged in the design of reclamation works, water-supply systems, plumbing systems, canals, control works for rivers and harbors, and hydraulic turbines, pumps, and accessories of all kinds.

"Carefully conducted tests in such a laboratory furnish data which enable the designer to keep the cost of his structure to a minimum, and, what is even more important, give assurance that the structure will perform its assigned task in the future in the most effective way possible and with a minimum cost for upkeep.

"This country is spending hundreds of millions of dollars annually in engineering works of a hydraulic nature. Our engineers have developed probably the best and most economical methods in the world for the handling of enormous quantities of materials and for the erection of the structures.

"They have applied the available knowledge of hydraulic phenomena in their designs as well as could any other group of engineers in the world. But they have lacked exact data and a detailed understanding of the process of flow which would have enabled them to improve greatly upon the fundamental features of their design."

#### Possible Studies

Scores of problems already await study in the new Laboratory. Many require special equipment the cost of which is prohibitive for the individual manufacturer. These problems include phenomena involved in flood control and in the design of structures for the new Boulder Dam. Hydro-electric power companies will be benefited by additional data relating to the design of trash racks, ground sluices, deflecting walls, intakes, and spillways.

In the number and extent of the problems to be considered it is claimed that the Laboratory will surpass any in Europe. Through Mr. Freeman, data on researches in hydraulics both in America and abroad have been compiled. Among the foreign cities which have laboratories are Darmstadt, Dresden, Stockholm, Graz, Charlottenburg, Berlin, Wilhelmshafen, Braunschweig, Karlsruhe, Vienna, Danzig, Brunn, Munich, and Leningrad.

#### A Successful Plan

In the past hydraulic experiments have effected enormous savings. Experiments connected with the design of a large ship lock, carried out by the Hydraulic Laboratory in Berlin, led to a saving, as reported by the contractors, amounting to \$500 000. A simplified construction for the emptying and filling of another lock, which was developed through experiment, accomplished a saving approaching \$100 000.

A model experiment in connection with two-ocean-going vessels resulted in an improvement which, according to the owners, saved \$25 000 of coal each year. In remodeling the third entrance to Wilhelmshafen to prevent the channel from silting, a submerged groin was decided upon as the result of model experiments. An expenditure of \$30 000 for this groin saved \$110 000 in five years, which would otherwise necessarily have been expended in dredging to maintain the entrance.

#### Culmination of Efforts

Efforts behind this movement are thus summarized by L. W. Wallace, Executive Secretary of American Engineering Council:

"The idea of a National Hydraulic Research Laboratory was first proposed by John R. Freeman in a Presidential Address before the American Society of Civil Engineers. Senator Joseph E. Ransdell, of Louisiana, had long cherished the same idea, in fact had discussed such a proposal with officials of American Engineering Council, which was instrumental in bringing Mr. Freeman and Senator Ransdell together to discuss ways and means of bringing about a realization of the project.

"The legislation was begun in the 67th Congress, September 8, 1922, when Senator Ransdell introduced Senate Joint Resolution 209. The question was then officially brought to the attention of American Engineering Council which organization endorsed the idea and has since continuously supported it.

"After seven years of effort by the Engineering Profession, the bill providing for a laboratory became a law with the signature on May 14, by President Hoover, who had supported the movement while he was Secretary of Commerce."

#### APPOINTMENTS OF SOCIETY REPRESENTATIVES

Among those recently appointed to represent the Society may be noted the following:

On Engineering Foundation, Inc.: George S. Davison, Past-President, Am. Soc. C. E., to fill the vacancy caused by the resignation of Lincoln Bush, Past-President, Am. Soc. C. E.

On the Administrative Board of American Engineering Council: F. M. Gunby, M. Am. Soc. C. E., to fill the vacancy caused by the death of Frank M. Williams, M. Am. Soc. C. E.

On the Washington Award Commission: D. W. Mead, M. Am. Soc. C. E.

On Sectional Committee on Standardization of Stock Sizes, Shapes, and Lengths of Hot and Cold-Finished Iron and Steel Bars: F. H. Dechant, M. Am. Soc. C. E.

### MERITED HONORS

With the current 1930 college commencements, merited honors have come to a number of engineers. Recognition of accomplishment in their chosen field has been in the form of honorary degrees in engineering. In all the cases mentioned, the awards have been of the Doctor's Degree, the highest in the gift of the university.

Among those noted have been the following:

Harrison P. Eddy, M. Am. Soc. C. E., D. Eng., from Worcester Polytechnic Institute, June 13, 1930.

Thaddeus Merriman, M. Am. Soc. C. E., D. Eng., from Lehigh University, June 10, 1930.

William M. White, M. Am. Soc. C. E., Sc. D., from Tulane University, June 11, 1930.

Certain similarities mark these events. Although the three men are in entirely different types of work, all are interested directly in the hydraulic branch of engineering. In each case also the honor comes from the Alma Mater of the recipient.

Yearly, many similar degrees are given to engineers of which only a small proportion come to the notice of the Society. Doubtless the current year is no exception and many other members have been likewise signally honored and with native modesty have failed to make known the fact. To all such engineers, both known and unknown, their fellow members will accord the honor of well merited recognition.

### COMMITTEE ON MUNICIPAL CLEANSING PRACTICE

At the Sacramento Meeting of the Society on April 21, 1930, the Board of Direction authorized the appointment of

a Committee on Municipal Cleansing Practice. Following the recommendations contained in a resolution by the Sanitary Engineering Division of the Society, the Board instructed that representation on this Committee be invited from the American Society of Mechanical Engineers, The American Medical Association, The League of American Municipalities, and the International Association of Street Cleaning Authorities.

### SUCCESSFUL SUMMER SCHOOL

While it is too early to appraise in full the value of the School for Teachers in Civil Engineering held at Yale University, July 1 to 23, yet the results already attained point to a most gratifying success.

Almost a hundred men were registered as active participants in the entire work of the course. Many of these were accompanied by members of their families so that counting these latter as an essential part to the value of the entire session, about 150 may be considered as the total attendance.

Considering the excellent arrangements made, it is only natural to expect a successful meeting from an organization point of view. This was, in fact, realized. In addition, social events of various kinds helped to while away the spare hours. Whenever the leisure afforded, a group of teachers would be found discussing common interests or simply enjoying their social contacts. All in all the various sessions in their entirety must be considered as a distinct success, very gratifying to the Society for the Promotion of Engineering Education and similarly, although in a less measure, to the American Society of Civil Engineers which was privileged to co-operate in a general way. H. P. Hammond, M. Am. Soc. C. E., was General Director of the Summer School.

### A CHANGE IN NAMES HERE AND THERE

The action of Local Sections in changing their names is of general interest. Baltimore Section has changed its name to Maryland Section, thus embracing a wider field from which to draw its members. The Western Washington Section, on the other hand, has changed its name to Seattle Section, thereby restricting its membership jurisdiction. The latter action was deemed necessary after the establishment of the new Local Section in Tacoma, Wash. The Board of Direction has given its sanction to these changes, thus making them official.

### INTERNATIONAL ASSOCIATION FOR BRIDGE AND STRUCTURAL ENGINEERING

Oftentimes the engineer is confused in the multiplication of organizations which he is urged to join; however, the new society here described has much to commend it to the favorable consideration of civil engineers. Under the name "International Association for Bridge and Structural Engineering", it was founded on October 29, 1929, in Zurich, Switzerland. Previously, however, a conference of an international nature had been held in the same place in 1926, when representatives from various parts of the globe met to discuss common engineering problems.

Similarly, a Second International Congress was held in Vienna, in 1928. Out of all this emerged the actual organization a year later. The most recent meeting occurred in April of the current year and a still further session is promised for 1932, to be held in Paris. This is, therefore, a going organization, supported by representatives of a dozen or more nations, in the person of leaders of engineering.

At first glance, the American engineer might question the purpose and need of still another organization. The answer may be found in the Articles of Association which state that the objects are:

"To promote the international co-operation of representatives of science, manufacturing, and building industry in the field of bridge and structural engineering, and to provide facilities for the interchange of ideas as well as for the publication of the results of research work and practical experience.

"For this purpose Congresses will be held at intervals of 3 to 6 years. Moreover, the Association may apply any other means in pursuance of the objects of its foundation. It will publish reports and promote scientific research work and practical experiments."

As constituted at present, the officers include as President, Professor Dr. Rohn, President of the Swiss Federal Institute of Technology, and as Secretary, Professor Dr. Ing. Karner, of the same institution. The headquarters are in Zurich and the annual dues for individual members are \$2.00. To those interested, further information may be had by addressing the Association direct, Eidg. Technische Hochschule, Zurich, Switzerland.

### STUDY OF CRACKS IN DAMS

The U. S. Bureau of Reclamation, under the directorship of Elwood Mead, M. Am. Soc. C. E., has begun a study of cracks in dams. This is the result of recommendations made by the Boulder Dam Consulting Board. H. M. Westergaard, M. Am. Soc. C. E., who has been placed in charge of this work, has been busy visiting existing dams that seem to offer the best source of information on this subject. The study will be extremely helpful in furthering the technical knowledge relating to safety in the construction of dams.

### KEEPING THE OFFICERS "ON THE JUMP"

That the officers of the Society are doing their utmost to maintain an intimate contact with subdivisions of the Society everywhere, is strikingly demonstrated by a list of visits made by three of them since the first of the year. President John F. Coleman, Vice-President Joseph M. Howe, and the Secretary—either singly or together—visited the following places in the period, January 17 to May 13:

Mid-South Section; Cleveland Section; Engineering Institute of Canada at Ottawa; Princeton Engineering Society; Baltimore Section; Illinois Section; Milwaukee Section; Marquette University Student Chapter; Northwestern Section; University of Minnesota Student Chapter; Iowa Section; Nebraska Section; Colorado Section; University of Colorado Student Chapter; Utah Section; University of Utah Student Chapter; Portland Section; Seattle Section; Tacoma Section; Spokane Section; University of Washington Student Chapter; San Francisco Section; University of California Student Chapter; Los Angeles Section; University of Southern California Student Chapter; California Institute of Technology Student Chapter; San Diego Section; Arizona Section; University of Arizona Student Chapter; Texas Section; Rice Institute Student Chapter; Oklahoma Section; Kansas City Section; Kansas State Section; University of Kansas Student Chapter; and St. Louis Section.

If this list does not appear impressive, try, as a minimum test, to divide it into three equal parts and arrange an itinerary for each.



## Meetings of the Board of Direction

This is an abstract of the notes of the Secretary and subject to approval by the Board of Direction at its next meeting.

The Board met at the Senator Hotel, Sacramento, Calif., on April 21 and 22, 1930; President J. F. Coleman in the chair; George T. Seabury, Secretary; and present, also, Messrs. Bush, Dusenbury, Dyer, Eddy, Fowler, Hammond, Howe, Jacobs, Johnston, Knowles, McCrea, Morris, Pirnie, Reichmann, Singstad, Stevens, Thomas, and Winsor.

### Approval of Minutes of Meetings of Board of Direction

The minutes of the meetings of the Board of Direction held on January 13, and 14, and January 16, 1930, were approved, and the actions outlined therein were adopted as the actions of the Board.

### Approval of Minutes of Meetings of Executive Committee

The minutes of the meeting of the Executive Committee held on January 16, 1930, were approved, and the actions outlined therein were adopted as the actions of the Board. Subsequently, at the afternoon session, the minutes of the Executive Committee meeting held on April 21, 1930, were similarly approved.

### Director George Harvey Norton

The following resolution on the death of Director George Harvey Norton, was adopted by a rising vote:

*"Whereas, The members of the Board of Direction of the American Society of Civil Engineers have learned with profound regret of the death of their confrere, George Harvey Norton, who has been a Member since April 7, 1915, and has served as Director since January, 1929; and*

*"Whereas, In Major Norton's death the Board of Direction has lost a loyal and efficient officer and the Society a devoted member,*

*"Therefore Be It Resolved, That the Board of Direction of the American Society of Civil Engineers records in the Minutes of this meeting held at Sacramento, Calif., April 21, 1930, an expression of its appreciation of the fine character of George Harvey Norton, of his keen interest in the Society, and of his faithful and efficient work while a member of this Board; and that there be tendered a message of sympathy to the members of his family."*

### Edward P. Lupfer Appointed a Director

In accordance with the provisions of the Constitution the vacancy on the Board of Direction caused by the death of George Harvey Norton, M. Am. Soc. C. E., of Buffalo, N. Y., on March 4, 1930, representing District No. 3, was filled by the election of Edward P. Lupfer, M. Am. Soc. C. E., of Buffalo. Subsequently, it was reported that Mr. Lupfer had accepted, in response to a telegram announcing such appointment.

### Appointment of Secretary, Treasurer, and Assistant Treasurer

In accordance with Article III, Section 3 of the By-Laws, George T. Seabury was unanimously re-appointed as Secretary of the Society; Otis E.



Hovey was unanimously re-appointed as Treasurer; and Ralph R. Rumery was unanimously re-appointed as Assistant Treasurer.

#### **Report on Charges and Method of Making Charges for Professional Services**

The Final Report on Charges and Method of Making Charges for Professional Services, prepared by the Committee on Fees, was presented and, after slight modifications, adopted. The Tentative Report was published in *Proceedings*\* and discussed by Local Sections and individual members, such discussion having been considered by the Committee before submitting its final report.

#### **Board Meetings Reduced from Six to Five Annually**

On March 19, 1930, the canvass of ballots on amendments to the Constitution resulted in the passage of the following amendment to Article VI, Section 2 (changing the word "four" in that Section to "three"):

"2.—Meetings of the Board of Direction shall be held at the time of the Annual Meeting and of the Annual Convention, at which meetings twelve members shall constitute a quorum; and in each year not less than three other meetings at such other times and places as the Board may determine, at which nine members shall constitute a quorum."

#### **Constitutional Amendment Carried, Providing for Additional Director**

It was reported that the canvass of ballots on the amendment to the Constitution on March 19, 1930, at Society Headquarters, had resulted in the passage of the amendment to Articles V and VII, changing the number of Directors from 18 to 19. This will make probable the formation of an additional District, and for the purpose of study of the new districting, the matter was laid over until the July Meeting, for report from the Committee on Districts and Zones.

#### **Alfred Noble Prize**

The Alfred Noble Prize Committee submitted the rules governing the Award which, with certain modifications, were approved.†

#### **Committee on Professional Conduct**

The Committee on Professional Conduct reported on five cases which were considered and acted upon by the Board.

#### **Committee on Publications**

The Committee on Publications presented a report recommending a new journal, to be issued monthly. After discussion, the project was approved, and \$14,000 was appropriated to cover the expenses of getting the new magazine started.

\* *Proceedings*, Am. Soc. C. E., September, 1929, Society Affairs, p. 236.

† See Items of Interest for Rules, p. 170.

### **Co-Ordination of Work of Special Committee on Irrigation Hydraulics with That of Irrigation Division**

A report from the Special Committee on Irrigation Hydraulics, and the Executive Committee of the Irrigation Division, was approved, whereby the work of the two groups will be arranged to avoid overlap of activities.

#### **Phebe Hobson Fowler Professional Awards**

The recommendations of the Phebe Hobson Fowler Professional Award Committee were approved, as follows: The First Award to Mr. Arthur W. Berresford, in recognition of his particularly efficient administration of American Engineering Council during the two years of his incumbency as its President; the Second Award to J. Vipond Davies, M. Am. Soc. C. E., in recognition of his accomplishment as Chairman of the Committee of the Society which developed the Report on Charges and Method of Making Charges for Professional Services adopted by the Society. No Third Award was made.

#### **Phebe Hobson Fowler Architectural Awards**

In accordance with authority from the Board, the Executive Committee approved the recommendations of the Phebe Hobson Fowler Architectural Award Committee, as follows:

First Award to Morris Goodkind, M. Am. Soc. C. E., for the design of the Raritan River Bridge, New Brunswick, N. J.; Second Award to Charles M. Spofford, M. Am. Soc. C. E., for the design of the Lake Champlain Bridge; Third Award for the design of the Dixon Springs Bridge, Dixon Springs, Ill.

#### **Recommended Uniform Registration Law for Engineers and Land Surveyors**

The Committee on Registration of Engineers presented a recommended Uniform Registration Law for Professional Engineers and Land Surveyors, which was adopted.

#### **Committee on Student Chapters**

In accordance with the recommendations of the Committee on Student Chapters, the application for the formation of a Chapter at the Catholic University of America was approved.

#### **Baltimore Section Changes Its Name to Maryland Section**

Approval was given to amending the Constitution of the Baltimore Section to change the name to "Maryland Section", and to make minor changes regarding date of payment of dues.

#### **Western Washington Section Changes Name to Seattle Section**

Approval was given to the action of the Western Washington Section in changing its name to "Seattle Section", such change being deemed desirable in view of the establishment of the Tacoma Section of the Society.

#### **San Diego and San Francisco Sections Revise Constitutions and By-Laws**

Approval was also given to certain revisions in the Constitutions and By-Law of the San Diego Section and the San Francisco Section.

### **Proposed Joint Committee on Municipal Cleansing Practice**

A resolution of the Sanitary Engineering Division adopted at the Annual Meeting in January, 1930, was presented, as follows, and discussed:

*"Resolved:* That the Sanitary Engineering Division requests the Board of Direction to appoint a Committee on Municipal Cleansing Practice, to include in addition to members of the American Society of Civil Engineers accredited representatives of the following: The American Society of Mechanical Engineers, The American Public Health Association, The American Medical Association, The League of American Municipalities, and the International Association of Street Cleaning Authorities."

The President was authorized to appoint three representatives from the Society on such Joint Committees, the project to be undertaken as outlined in the foregoing resolution with the understanding that there will be no expense to the Society.

### **Merritt Haviland Smith Memorial**

A fund of \$1 076.50 was accepted to be held in trust for the care of the Merritt Haviland Smith Memorial erected in the form of a bronze tablet at Kensico Dam, New York.

### **Resolutions by World Engineering Congress**

It was reported that under date of February 5, 1930, there was received from Baron Koi Furuichi, President of the World Engineering Congress, the following two resolutions adopted unanimously by the General Meeting of the Congress prior to the closing ceremony held on November 7, 1929, in connection with which the Society is asked to take action:

#### *Re Proposed World Engineering Federation:*

*"Be It Resolved* that the delegates of the various Nations be requested to explore the situation, with a view of ascertaining the opinion, in their own Countries, as to the advisability and practicability of bringing forward for action some plan aiming at World Engineering Federation:

*"And that this subject should have an important place allotted to it at the next World Engineering Congress."*

#### *Re Study of the Safety of Dams:*

*"Be It Resolved* that the attention of Engineering Societies in the various countries participating in this Congress be directed to the importance of a full understanding of hydrostatic uplift, internal stresses, and other factors affecting the safety of dams, and that the American Society of Civil Engineers be requested to invite the co-operation of the Committee on Dams of the International Navigation Congress, also the World Power Conference, and the Engineering Organizations of the other countries represented at this Congress, in a study of this problem."

The resolution in regard to a World Engineering Federation was laid on the table and that in regard to inviting co-operation in the study of the problem of dams was referred to the Society's newly appointed Special Committee on Dams for report in July.

### Local Sections\*

**Central Illinois.**—April 15, 1930. A dinner meeting was held at which Past-President A. N. Talbot spoke on the recent World Engineering Congress, and Vice-President J. J. Woltmann, described some interesting features connected with his work on the Bloomington Works Project. Attendance 35.

May 31, 1930. The Annual Outing was held at the Sunnyside Golf Club, Decatur, Ill. The day was much enjoyed by those present who engaged in golf and bridge and other entertainment after dinner in the evening. Attendance 39.

**Central Ohio.**—April 24, 1930. Following luncheon at the Chittenden Hotel, a brief business meeting was held. Professor C. E. Sherman gave an illustrated talk on "The Status of the Lake Erie-Ohio River Waterways Connection." Attendance 33.

May 20, 1930. Among other business matters, George B. Sowers, President of the Cleveland Section, described the plans for the Annual Convention to be held in Cleveland, Ohio, July 9, 10, and 11. Attendance 21.

June 17, 1930. At a luncheon meeting at the Chittenden Hotel, in Columbus, Mr. C. B. Hoover, gave an illustrated talk on "Water Distribution Problems." Attendance 20.

**Cincinnati.**—April 24, 1930. The Annual Meeting was held jointly with the Student Chapter at the University of Cincinnati Y. M. C. A. Building. A dinner preceded the election of the following officers: President, J. E. Root; Vice-President, H. W. Hanly; and Secretary-Treasurer, Clifford N. Miller. Mr. Herbert Starick was elected President of the Student Chapter. George B. Sowers, President of the Cleveland Section, outlined plans for the Annual Convention to be held in Cleveland, Ohio, in July. Attendance 62.

**Cleveland.**—April 8, 1930. This meeting was held in Guild Hall in the new Builders Exchange Building. President Sowers gave a brief summary of plans for the Annual Convention, after which he introduced Col. E. M. Markham, District Engineer, U. S. Engineer's Office, Cleveland, and F. R. Howson, Consulting Engineer of Chicago, Ill. A discussion of the proposed Fulton Road Bridge over Brookside Park was led by Mr. Robert Hoffmann and in conclusion Mr. J. M. Heffelfinger, Jr., reviewed some of the design features of the bridge. Attendance 47.

May 13, 1930. At this meeting held in Guild Hall in the Builders Exchange Building, President Sowers introduced the members of the Case Student Chapter and presented the 1930 award to Mr. Roger Reid Wilson. Mr. Howard W. Green spoke on the 1930 Census. Attendance 49.

June 24, 1930. A luncheon meeting was held at the Hotel Cleveland at which President Sowers and Messrs. Howard W. Green and James H. Herron discussed the program for the Annual Convention. Attendance 42.

**Colorado.**—March 17, 1930. Ladies Night was celebrated by a dinner held at the Denver Athletic Club. A brief business meeting followed, after which

\* For list of Local Section Officers, Rules, etc., see 1930 Year Book, p. 49.

Mr. Robert Follansbee presented an account of his trip around the world with special emphasis on the World Engineering Congress held in Japan in 1929. This address was supplemented by Mr. D. C. Henny, of Portland, Ore., who narrated a few of his experiences at the Engineering Congress. Mr. Arthur Ridgway then spoke on the recent Convention of the American Railway Engineering Association in Chicago, Ill., and an illustrated, descriptive lecture on the construction of the new Cascade Tunnel was given by Mr. W. W. Curtis. Attendance 57.

April 7, 1930. At this meeting, held at the Lake-Wood Country Club, President Coleman and Secretary Seabury were the guests of honor. President Coleman spoke briefly on the broadening activities of the Society and the Secretary presented a résumé of Society affairs. Attendance 50.

May 12, 1930. This was the annual joint meeting of the Section with the Student Chapter of the University of Colorado. Following dinner served at the Denver Athletic Club, awards were given for papers submitted by students. First place was given to Mr. Marshall Pitney for his paper on the Alton-St. Louis Bridge, and honorable mention was given to Messrs. Charles Rodman and Harvey Olander for their papers on Hell Gate Arch and the Hudson River Bridge, respectively. Mr. Pitney presented his paper and Mr. Arthur Ridgway spoke on "Effect of Physical Characteristics on Transportation". A discussion and business session concluded the meeting. Attendance 43.

**Connecticut.**—April 25, 1930. At the Annual Meeting held at the Graduates Club in New Haven, the following officers were elected for the ensuing year: President, Carlton T. Bishop; Vice-President, Roscoe N. Clark; and Secretary-Treasurer, Clarence M. Blair. The remainder of the evening was spent in a round table discussion of matters of Society interest and questions relative to engineering work in Connecticut. An announcement was made of the summer school for engineering teachers to be held in New Haven in July. Attendance 18.

**Duluth.**—May 19, 1930. This was the Annual Meeting at which the following officers were elected for the ensuing year: President, S. B. Shepard; First Vice-President, G. H. Butler, Sr.; Second Vice-President, Earl Kelly; Treasurer, John Carson; Secretary, William E. Hawley; and Past-Presidents, LeRoy M. Pharis and E. J. Eriksson. Further business was transacted and the meeting adjourned.

**Georgia.**—April 7, 1930. A noon meeting was held at the Atlanta Athletic Club. A number of members of the Student Chapter of the Georgia School of Technology, several out-of-town visitors, and Capt. J. W. Barnett, Chairman of the Georgia State Highway Department, were guests of the Section. A moving picture entitled "The Modern Goliath" or "The Story of Heavy Excavating Machinery" was shown. Attendance 59.

May 5, 1930. This meeting was held at the Athletic Club in Atlanta. Business matters were transacted and Director Johnston reported on his trip to Sacramento, Calif., where he attended the Spring Meeting of the Society. E. M. Price, Rate Expert of the Georgia Public Service Commission, discussed



the composition and various problems and requirements of this Commission. Attendance 24.

June 2, 1930. At a meeting held at the Athletic Club in Atlanta, Mr. H. J. Stemm of the Georgia Power Company presented a paper on "How the Society Can Be of More Help to the Junior Members". A discussion and business meeting followed. Attendance 18.

**Illinois.**—May 29, 1930. A luncheon meeting of the Section was held at the Engineers' Club in Chicago. Mr. C. L. Post, Chairman of the Education Committee, explained the system used by the Committee in selecting the recipients of the Junior Membership awards given by the Section. President C. A. Morse then presented an address, after which certificates of Junior membership in the Society were awarded to the following: E. K. Alexander, Rose Polytechnic Institute, Carl Anderson, Lewis Institute, C. B. Cox and L. F. Kirkley, Purdue University, John W. Hurley, Armour Institute of Technology, B. Murphy and C. J. Scheve, University of Illinois, and Bror Nordberg, Northwestern University. Professors A. E. Phillips of Armour Institute, J. G. Bennett of Lewis Institute, G. A. Maney and M. B. Gamet of Northwestern University, and R. L. McCormick of Rose Polytechnic Institute, expressed their appreciation of the action of the Section. Attendance 44.

**Kansas City.**—May 9, 1930. At the Annual Meeting of the Section the following officers were elected for the ensuing year: President, A. E. Harvey; First Vice-President, Henry C. Tammen; Second Vice-President, A. N. Reece; Secretary-Treasurer, H. M. Brush; and Board of Directors, A. C. Everham, A. E. Harvey, Henry C. Tammen, A. N. Reece, and H. M. Brush.

**Kansas State.**—May 12, 1930. At this meeting held at the Jayhawk Hotel in Topeka, Secretary Seabury and Mr. G. E. Marple were the guests of honor. Mr. Marple was the recipient of the Local Section Prize awarded to the honor student in the Senior Class in Civil Engineering at the University of Kansas. Dinner was served, after which Mr. Seabury spoke on Society affairs. Attendance 22.

**Los Angeles.**—March 26, 1930. The Sanitary Group of the Section met at the Beverly Hills Hotel. Mr. Arthur Taylor presented a paper describing the investigation of treatment of the Beverly Hills water supply and the design of the Softening and Filtration Plant. Mr. John Perhab, Superintendent of the Plant, presented a paper describing its operation. Just prior to the meeting a caravan trip had been made to this plant and to the covered storage reservoir, also to the Franklin Canyon Automatic Chlorinating Station of the City of Los Angeles.

April 12, 1930. A joint meeting of the Section and the Student Chapter of the California Institute of Technology was held, the occasion being an "Open House" of the Institute for visitors. Following a Junior Forum, dinner was served in Dabney Hall of Humanities, after which the meeting adjourned to the lecture room of the Norman Bridge Physical Laboratory for the evening program. Ralph Modjeski, M. Am. Soc. C. E., addressed the meeting, first briefly telling of the history and development of suspension bridges and

then describing, with the aid of slides, the design and construction of the Philadelphia-Camden Bridge.

April 30, 1930. At this special meeting the Section had the honor of being host to a number of the Officers and Directors of the Society. President Coleman spoke on the Mississippi River Flood Control Problem and Secretary Seabury spoke briefly of the activities of the Society.

May 14, 1930. The Section met at the Engineers' Club for dinner. The program for the evening which was supplied by the Sanitary Group of the Section consisted of several vocal selections by Mr. Norman Kelch accompanied by Mr. Robert Linton, and an illustrated address on "Municipal Engineering in Europe" by Charles G. Hyde, Professor of Sanitary Engineering, University of California.

June 1, 1930. A caravan was conducted by the Firestone Tire and Rubber Company of California to the Firestone Plant where members present were taken through the entire plant by courteous guides.

June 17, 1930. At this meeting, members and guests of the Section, with their ladies, assembled in El Paseo de Los Angeles. A Spanish dinner and entertainment constituted the evening's program.

**Louisiana.**—May 30, 1930. This was the Annual Meeting of the Section. Business matters were transacted and a resolution passed relative to provision by the Society for the attendance of a Local Section representative at one Society meeting per year, all expenses defrayed. President John F. Coleman spoke on Society activities followed by Director A. T. Dusenbury. The following officers were elected for 1930-1931: President, E. S. Lanphier; Vice-Presidents, C. N. Bott and G. P. Rice; Treasurer, G. W. Hillman; and Secretary, J. de Tarnowsky. Attendance 32.

**Miami.**—April 30, 1930. A joint dinner meeting of the Section and the Palm Beach Engineers' Club was held at the Tuscawill Club at West Palm Beach, Fla. Subsequent to a business meeting relative to Society affairs, Mr. M. R. Kays presented an address on the Boulder Dam Project. A discussion concluded the meeting. Attendance 16.

May 27, 1930. A dinner meeting of the Section was held at the McAllister Hotel. Following a business meeting Mr. J. E. Jewett read a paper on "Flood Control in the Miami Conservancy District". Mr. Jewett illustrated his lecture with lantern slides. Attendance 16.

June 16, 1930. This was a dinner meeting at which Mr. Nix, of the H. H. Robertson Protected Metal Company of Pittsburgh, Pa., showed a motion picture of a part of the construction of the dirigible hangar owned by the Goodyear Company of Akron, Ohio. An illustrated lecture on "Mississippi River Flood Control", was presented by Mr. C. S. Nichols. Attendance 21.

**Mid-South.**—May 15 and 16, 1930. The first Annual Meeting of the Section convened in Little Rock, Ark. At a morning meeting, President Hidingar gave a short history of the Society. Business matters were discussed and the following officers elected for the ensuing year: President, N. B. Garver; Vice-Presidents, O. G. Baxter, J. R. Fordyce, J. H. Dorroh, P. S. Reinecke,

H. S. Gladfelter, and G. W. Miller; and Secretary-Treasurer, K. W. Markwell. Major L. D. Worsham then addressed the Section on the problems confronting himself and his associates in collecting data for the Army Engineers' report on flood control for the tributaries to the Mississippi River. He also described the effect of such on the main stream, as authorized by Congress. Luncheon, served by members of the Little Rock Engineers' Club was followed by an address from E. A. Hadley, Chief Engineer, the Missouri Pacific Lines, who spoke of the major constructive improvements made in the Missouri Pacific property during the past year and also of that contemplated in the near future. J. H. Haylow, Chief Engineer, Memphis Street Railway, then spoke on "Our Present Greatest Unsolved Problem—Transportation". Visiting ladies enjoyed a trip around the city and luncheon was served by a Committee consisting of the wives of Little Rock members. The annual dinner was held in the ball room of the Marion Hotel and the Rev. Roy Rutherford gave an address entitled "Not You and Me but 'T'". An excursion to Carpenter Dam on the following morning and a complimentary luncheon served by the Kingsway Hotel, at which C. S. Lynch, Chief Engineer of the Arkansas Power and Light Company, addressed the guests, concluded the Convention. Attendance 71.

**Milwaukee.**—March 21, 1930. A luncheon meeting of the Section was held at the New Hotel Randolph. Committee reports were presented and other business matters were transacted. Attendance 23.

April 1, 1930. President Coleman and Secretary Seabury were the guests of the Section at this meeting held at the Milwaukee Athletic Club. President Coleman spoke on Society affairs and detailed some of his experiences in seeking employment as a young man. Secretary Seabury outlined the National organization of the Society and the work of the several committees. Attendance 68.

May 22, 1930. A Section Meeting was held at the New Hotel Randolph. Professor Leslie Van Hagan, of the Engineers Society of Wisconsin, spoke on the proposed Engineers' Registration Law. A discussion of the subject followed. Attendance 20.

**New York.**—March 19, 1930. This was a joint meeting of the Section and the Society of Terminal Engineers, with which was combined the regular March meeting of the Society. Following the canvass of the Ballot on Amendments to the Constitution, Colonel Slattery reported on the progress made on the Engineers License Law and kindred matters and L. R. Gwyne, President of the Terminal Engineers, sponsored a resolution favoring the adoption of the three bills introduced into the Legislature relative to the Education Law, Architects' Registration Law, and the Multiple Dwelling Act. A similar resolution was previously adopted by the Section. An illustrated paper was then presented by George J. Ray, Chief Engineer, the Lackawanna Railroad Company, on the Lackawanna Terminal in Hoboken. A discussion of the subject followed, led by Billings Wilson, Department Manager of the Port Authority. Papers on the same subject were then presented by E. J. Moore, Vice-President, The Turner Construction Company of New York, and by Meyer Hirschthal, Concrete Engineer, the Lackawanna Railroad Company.

April 16, 1930. At this meeting various business matters were transacted, and a paper on "Stabilizing Prosperity in Entire Metropolitan District by Suburban Transit to the Heart of Manhattan Island" was then presented by Mr. Francis Lee Stuart. The subject was discussed by Glenn S. Reeves; Secretary of the Suburban Transit Board of the Port Authority, C. E. Smith, Vice-President of the New York, New Haven, and Hartford Railroad Company, Colonel Slattery, Deputy Chief Engineer, the Board of Transportation, H. M. Lewis, and T. Kennard Thomson.

May 16, 1930. At the Annual Meeting of the Section the following officers were elected for the ensuing year: President, Arthur S. Tuttle; Vice-President, William F. Reeves; Secretary, William J. Shea; Treasurer, Charles E. Trout; and Directors, H. W. Hudson and V. T. Boughton.

**Northeastern.**—April 10, 1930. Matters of business only were discussed at this meeting held at the Boston City Club.

April 11, 1930. A special luncheon meeting of the Section was held at the Boston City Club. A letter from the Connecticut Section was read, after which Mr. Leake, President of the Leake and Nelson Company, Bridgeport, Conn., presented an illustrated address on "Electric Welding of Structural Steel and Bridge Repairs". A general discussion of his subject concluded the meeting. Attendance 64.

May 8, 1930. The Executive Committee of the Section held a meeting at the Boston City Club. A discussion took place in connection with the program for the regular Section meeting to be held at the "Newsboys Foundation."

May 9, 1930. At this meeting held at the "Newsboys Foundation", adjacent to the Boston City Club, Dr. Paul V. Faragher of the Engineering Executive Staff of the Aluminum Company of America was introduced. Dr. Faragher spoke on the aluminum industry and described the operations at the Massena Mill, where there is a 72-ft. aluminum traveling crane which weighs about 24 000 lb. less than a steel crane of the same span and capacity. A discussion followed. Attendance 45.

**Philadelphia.**—May 15, 1930. The afternoon and evening's program for this meeting included a luncheon and an inspection trip to the South Broad Street Subway, the Reading Terminal Commerce Building of the Reading Company, and the Philadelphia improvements of the Pennsylvania Railroad Company, as well as a dinner followed by a meeting at the Engineers Club. At the luncheon, Walter H. Thomas, Director of the Department of City Architecture, spoke on "City Planning Considerations". Jacques Greber, of Paris, France, spoke on "City Planning in Philadelphia", and the Hon. Harry A. Mackey, Mayor of the City, outlined the City's program of improvements. In the evening, Clark Dillenbeck, Chief Engineer, Reading Company, described the Reading Railroad Improvements; Charles H. Stevens, Engineer of Design, Department of City Transit, outlined the plans of the Department for improving conditions; James Phillips, of the Bureau of Engineering and Surveys, described the City's Schuylkill River improvements; Robert Farnham, Chief Engineer, Philadelphia Improvements, Pennsylvania Railroad,



showed slides and motion pictures of the Philadelphia improvements, and Eli Kirk Price, Member of the City Planning Commission, delivered an address on the "Redemption of the Schuylkill River". This meeting was the best attended of the 1929-1930 year. The attendance at luncheon was 171, on the bus trip, 183, at dinner, 178, and at the meeting, 225.

June 2, 1930. The Annual Meeting of the Section, preceded by a dinner, was held at the Engineers' Club. Vice-President Arthur J. Dyer and Secretary Seabury were guests of the Section and addressed the members on Society matters. Those receiving the award of Junior Membership prizes from the Section were as follows: Eldred D. Smith, Drexel Institute Student Chapter, and S. E. Breth, Villanova College Student Chapter. The following officers were then elected for the ensuing year: President, Charles S. Shaughnessy; Secretary-Treasurer, George H. Shaw; and Directors, Charles A. Howland and Clarence E. Myers. A vote of thanks was extended to the retiring officers for their services during the past year. Attendance 85.

**Porto Rico.**—March 22, 1930. A quarterly meeting of the Section was held, at which two papers were read. One of these treated of the water supply systems of Porto Rico and the other, of refuse incinerators and their application to the City of San Juan.

**Providence.**—May 20, 1930. At the Annual Meeting of the Section the following officers were elected for the ensuing year: Chairman, William George Brenneke; Vice-Chairman, James Lee Murray; and Secretary-Treasurer, William Ramsden Benford.

**Sacramento.**—March 11, 1930. At this meeting of the Section Robert L. Wing, of the State Division of Water Resources, read a paper entitled "Flood History and Weather Prediction by Tree Ring Analysis". Attendance 45.

March 18, 1930. "The Position of the Engineer in Society" was the subject of an address by H. J. Brunner, of San Francisco. Attendance 46.

March 25, 1930. A motion picture, "The Manufacture and Use of Spark Plugs", made by the United States Bureau of Mines, was shown at this meeting. Attendance 57.

April 1, 1930. In letters written to the Secretaries of War, Interior, and Agriculture, the Section expressed its confidence in the ability, integrity, and impartiality of Frank E. Bonner, Executive Secretary of the Federal Power Commission, while he was acting in California. Attendance 54.

April 8, 1930. "Aerial Photography" was the subject of an address by Capt. A. W. Stevens, Chief of the Aerial Photograph Units of the Materials Division, U. S. Army. Captain Stevens, who holds the world's record of 24 200 ft. for a parachute jump and a record of 35 611 ft. for altitude, particularly described the taking of the photograph of Mt. Rainier from a distance of 227 miles. Attendance 53.

April 15, 1930. At this meeting, Dr. Elwood Mead described the work of President Hoover's Commission on Conservation and Public Domain. Attendance 61.

April 21, 1930. Members of the Section and their ladies gave a dinner at the Hotel Senator to visiting officers of the Society and their wives who were in attendance at the 1930 Spring Meeting of the Society. Attendance 104.



April 22, 1930. James F. Collins, Director of the State Department of Professional and Vocational Standards, addressed the meeting on "Registration of Civil Engineers". Attendance 96.

April 29, 1930. This meeting was devoted to a discussion of the Spring Meeting of the Society. Attendance 46.

May 6, 1930. Harry B. Walker read a second paper on the "Industrial Development of Japan". Mr. Walker, who is Professor of Agricultural Engineering in the College of Agriculture, University of California, was a delegate to the International Engineering Congress held last year in Tokyo, Japan. Attendance 41.

May 11, 1930. A motion picture, "The Story of Power", made by the United States Bureau of Mines, was shown at this meeting. Attendance 57.

**San Diego.**—March 27, 1930. A dinner meeting was held at the Cabrillo Cafe. Dr. T. Wayland Vaughan, Director of the Scripps Institute of Oceanography, presented a paper on "The Geology of the Torrey Pines Region." His study was made at the instance of citizens of San Diego who were concerned over a proposal to build a State highway through Torrey Pines Park. A discussion followed, led by Professor John B. Porter, Chairman of the Canadian Advisory Committee of the Council of the Institution of Civil Engineers, and Dr. George F. McEwen, of the Scripps Institute, both of whom were guests of the Section. Attendance 31.

May 1, 1930. At this meeting President John F. Coleman, Vice-President J. M. Howe, Director Charles H. Stevens, and Secretary Seabury were the guests of the Section. President Coleman told of the Spring Meeting and of his visits to local sections. Mr. Howe explained the policy of the Society regarding opinions expressed publicly by Local Sections. Mr. Stevens gave some impressions of a Director sitting with the Board of Direction for the first time, and Mr. Seabury reported on the questionnaire on qualifications and on several other matters. Attendance 26.

May 22, 1930. A regular dinner meeting of the Section was held at the Golden Lion at which Capt. Charles T. Leeds, U. S. A. (*Retired*), of Los Angeles, Calif., addressed the members on "Harbor Development of the Pacific Coast". Attendance 22.

June 26, 1930. A dinner meeting was held, at which D. L. Bissell, Assistant City Engineer, spoke on "Valuation of the City Water Impounding and Distribution System." Attendance 27.

**San Francisco.**—February 18, 1930. This was a regular dinner meeting of the Section held at the Engineers' Club. Following a business meeting, Director F. H. Fowler explained recent welfare work of the Board of Direction and Mr. George W. Hawley spoke regarding the Sacramento Meeting, held April 23-25, 1930. President H. D. Dewell then delivered an inaugural address, reviewing the activities of the Section. The technical program consisted of an address entitled "Engineering in the National Parks", by F. A. Kittredge, Chief Engineer, the National Park Service. Attendance 110.

March 18, 1930. A special dinner meeting of the Section was held at the Engineers' Club. A business meeting preceded the technical program which

latter was composed of an illustrated address entitled "Earthquake-Resistant Building Construction in Japan in Theory and Practice", by Professor R. R. Martel. Attendance 103.

April 28, 1930. A regular dinner meeting of the Section was held at the Engineers' Club. Award of Junior Membership in the Society was made to the following students: John S. Hamilton, University of California Student Chapter, and George Avery Chester, Stanford University Student Chapter. The remainder of the evening was given over to the following addresses: A brief speech on Society activities by President Coleman; talks on Society matters by Vice-President J. M. Howe and Secretary Seabury; and an address on "The World Engineering Congress at Tokyo—Some Reflections", by Past-President C. E. Grunsky. Attendance 161.

**Syracuse.**—May 26, 1930. The Annual Meeting of the Section was held and officers were elected for the ensuing year as follows: President, Henry B. Brewster; Vice-Presidents, Marshall B. Palmer, and Warren A. Lyon; Director, J. H. Sturdevant; and Secretary-Treasurer, H. N. Cole.

**Tacoma.**—April 16, 1930. A dinner meeting was held at the Winthrop Hotel in honor of President Coleman and Secretary Seabury. Following a brief speech of welcome by Governor Roland B. Hartley, Mr. Coleman and Mr. Seabury gave talks on the subject of "Society Affairs". Mr. Glenn Parker then spoke on various engineering projects visited while on his recent trip through the Orient and Europe, including the World Engineering Conference. Attendance 50.

May 12, 1930. Fred H. Rhodes, Jr., Assistant Bridge Engineer of the City of Tacoma, addressed the meeting on the design and methods of construction of the Eleventh Street Viaduct. Progress of the work was shown by motion pictures. The Spring Meeting of the Society at Sacramento was the subject of brief talks by Messrs. J. L. Stannard, F. C. Dunham, and W. J. Ryan. Attendance 26.

## Engineering Societies Library

The services of the Engineering Societies Library are available to all members who wish searches, copies, translations, etc., or advice on technical literature. A collection of modern books is also available for loan to members in North America, at moderate rentals. Correspondence should be addressed to the Director, Engineering Societies Library, 29 West 39th Street, New York, N. Y., who will gladly give information concerning the charges for the various kinds of work. A more comprehensive statement in regard to this matter will be found on pages 77 and 78 of the Year Book for 1930.

### Book Notices\*

(April 1 to June 30, 1930)

**Acoustics of Buildings.** By F. R. Watson. Second Edition, Rev. N. Y., John Wiley & Sons, 1930. 155 pp., illus., diagrams, 9 x 6 in., cloth. \$3.00.

The acoustics of auditoriums, the sound-proofing of buildings, and the control of vibrations are discussed, including the advances during the past six years.

**American Civil Engineers' Handbook.** Edited by Thaddeus Merriman and Thomas H. Wiggin. Fifth Edition, Rev. and Enl. N. Y., John Wiley & Sons, 1930. 2263 pp., illus., tab., 7 x 5 in., fabrikoid. \$8.00.

In this, the first revision of this standard reference work in ten years, many new cuts have been added and the entire book has been reset. Two hundred and fifty pages have been added. A two-volume edition is also available.

**Applied Mechanics.** By Alfred P. Poorman. Third Edition. N. Y., McGraw-Hill Book Co., 1930. 306 pp., diagrams, 9 x 6 in., cloth. \$2.75.

This third edition makes large use of graphic methods and contains new illustrative examples.

**Aufgaben aus Technischer Mechanik: Statik, Festigkeitslehre, Dynamik.** By L. Föppl. Mün. u. Ber., R. Oldenbourg, 1930. 188 pp., illus., 10 x 7 in., cloth. 15.- r.m.

This volume contains 195 examples illustrating applications of mechanics, thus giving students practice in its use.

**Balkenbrücken; Lieferung 2.** By W. Gehler. (Handbuch für Eisenbetonbau, Bd. 6., Third Edition. Edited by F. Emperger). Berlin, Wilhelm Ernst & Sohn, 1930. pp. 97-192, illus., diagrams, tab., 11 x 7 in., paper. 6.80 r.m.

This well-known manual discusses floors for reinforced concrete bridges, and the influence of heat on these bridges, also the design of the supporting structure, abutments, cross-ties, and bearings.

**Conservation of Our Natural Resources.** Based on Van Hise's "Conservation of Natural Resources in the United States". By Loomis Havemeyer and others. N. Y., Macmillan Co., 1930. 551 pp., illus., maps, 9 x 6 in., cloth. \$4.00.

This book gives the general public a presentation of conservation and its problems as of 1930.

**Design of Masonry Structures and Foundations.** By Clement C. Williams. Second Edition. N. Y., McGraw-Hill Book Co., 1930. 603 pp., illus., diagrams, tab., 9 x 6 in., cloth. \$5.00.

This text considers the aspects of stability, economy, and architectural appearance. New material has been introduced on plain concrete, arch dams, and foundations.

\* The statements made in these notices are taken from the books themselves, and this Society is not responsible for them. Unless otherwise specified, the books in this list have been donated by the publishers.

**Druck-und Biegeversuche mit Gegliederten Stäben aus Holz.** By Otto Graf. (Forschungsarbeiten, No. 319). Berlin, V. D. I. Verlag, 1930. 14 pp., illus., diagrams, tab., 12 x 9 in., paper. 2,50 r.m.

This report gives definite data from careful tests of wooden structural members. Compression and bending tests on solid and built-up columns and beams are reported.

**Einflüsse auf Beton.** Edited by A. Kleinogel. Third Edition. Berlin, Wilhelm Ernst & Sohn, 1930. 560 pp., illus., 10 x 7 in., paper. 37,50 r.m.

This monograph brings together a vast amount of information as to the effect of various substances on cement and concrete, such as acids, alkalis, oils, vapors, waters, soils, and various stored commodities, of earthquakes, etc. The new edition is considerably enlarged.

**Eisenverbrauch und Wirtschaftlichkeit im Eisenbetonbau.** By E. Röhr. Berlin, Wilhelm Ernst & Sohn, 1930. 95 pp., illus., tab., 10 x 7 in., paper. 8.- r.m.

The book is intended to aid estimators and contains tables for rapid calculation of steel required in reinforced concrete structures.

**Eiserne Gittermaste für Starkstrom-Freileitungen; Berechnung und Beispiele.** By Wilhelm Taenzer. Berlin, Julius Springer, 1930. 65 pp., illus., diagrams, tab., 12 x 8 in., paper. 13,50 r.m.

This is a theoretical and practical discussion of the design of steel lattice poles and towers for overhead lines. Complete calculations are given.

**Die Elektrischen Schweissverfahren.** By Hch. Krökel and Hans Niese. Berlin u. Lpz., Walter de Gruyter & Co., 1930. 136 pp., illus., 6 x 4 in., paper. 1,80 r.m.

This concise practical manual of welding describes apparatus and methods, advantages of electric welding, tests, etc.

**History of Science and Its Relations with Philosophy and Religion.** By William Cecil Dampier-Whetham. N. Y., Macmillan Co., 1929. 514 pp., 9 x 6 in., cloth. \$6.00.

In ten readable chapters is given a complete outline of the development of scientific thought from the ancient world down to the present time. The inner meaning of science and its bearing on philosophy and religion are emphasized.

**Idraulica; Vol. 1.** By Giulio de Marchi. Milan, Ulrico Hoepli, 1930. 560 pp., illus., diagrams, 10 x 7 in., paper. 80 lire.

This, the first of two volumes, discusses fundamental principles, hydrostatics, the flow of water in open and closed channels and underground, and the dynamic action of currents.

**Industrial Accounting for Executives.** By John R. Bangs, Jr. (Industrial Management Series.) N. Y., McGraw-Hill Book Co., 1930. 449 pp., illus., 9 x 6 in., cloth. \$5.00.

This volume gives engineers and executives the essentials of accounting principles and procedures as needed by administrative officers.

**Manual of Naval Architecture.** By George Charles Manning. N. Y., D. Van Nostrand Co., 1930. 183 pp., illus., diagrams, 9 x 6 in., cloth. \$2.75.

Naval architecture and ship construction are discussed from the point of view of the operating officer. All features of the hull are covered briefly.

**Materials of Engineering Construction.** By Francis W. Roys. N. Y., Ronald Press Co., 1930. 331 pp., illus., tab., 9 x 6 in., cloth. \$4.00.

In this practical textbook covering the characteristics and properties of the most used materials the descriptions are brief and direct. Current developments are considered with numerous illustrations.

**New Building Estimators' Handbook.** By William Arthur. Fifteenth Edition. N. Y., Scientific Book Corporation, 1930. 1023 pp., illus., tab., 7 x 5 in., fabrikoid. \$6.00.

This book is prepared with special reference to the needs of contractors for dwellings and buildings of twenty stories and less. Both steel and wood construction are considered, including practical data on the cost of materials and labor.

**Practical Wind Bracing.** By Harry E. Schneider. Buffalo, N. Y., The Author, 1930. 192 pp., diagrams, 9 x 6 in., cloth. \$3.00.

To design the wind bracing for various types of high buildings, the author uses the four usual methods: The cantilever, portal, continuous portal, and the Smith. He describes several short cuts.

**S. A. E. Handbook.** 1930 Edition. N. Y., Society of Automotive Engineers, 1930. 728 pp., illus., diagrams, tab., 7 x 4 in., fabrikoid. \$5.00.

The new edition of the Handbook contains the current standards and recommended practices of the Society of Automotive Engineers and the 600 specifications now in force.

**Statistical Tables and Graphs.** By Bruce D. Mudgett. Bost., Houghton Mifflin Co., 1930. 194 pp., illus., 8 x 5 in., cloth. \$1.75.

Emphasis is directed to those elementary statistical methods, the preparation of tables of figures and graphs, which are most used in business.

**Tables Annuelles de Constantes et Données Numériques, Vol. 7, Pt. 1.** Comp. by Le Comité International. 1930. 946 pp., diagrams, 11 x 9 in., cloth. \$25.00 per set (2 vol.)

This annual summary of chemical, physical, and engineering facts reviews the new constants and numerical data. It forms a supplement to the International Critical Tables. The present volume covers the years 1925 and 1926.

**Technique of Executive Control.** By Erwin Haskell Schell. Third Edition. N. Y., McGraw-Hill Book Co., 1930. 171 pp., 7 x 5 in., cloth. \$2.00.

This book discusses the tools of executive control, the duties of the executive, the control and stimulation of subordinates, and the difficulties with subordinates, superiors, and equals.

**Der Wasserbau, Bd. 2.** By Armin Schoklitsch. Wien, Julius Springer, 1930. pp. 485-1199, illus., diagrams, tab., 11 x 8 in., bound. 78.- r.m.

This concluding volume, devoted to dams and reservoirs, hydraulic power plants, irrigation and drainage, river regulation and navigable canals, treats of current practice, especially that of Central Europe.

### Additions to the Reading Room

**Applied Mechanics.** By Frederic N. Weaver, M. Am. Soc. C. E. N. Y., The Ronald Press Co., 1930. 332 pp., diagrams, 8½ x 5½ in., cloth. \$3.25.

This text, based upon the author's teaching and engineering experience, aims to present adequately the fundamental principles of mechanics, and yet interest the engineering student by immediate application of the theory to practical, or semi-practical, problems. The arrangement of the subject-matter, while involving no radical changes from the conventional methods of presentation, is original.

**Inspection of the Materials and Workmanship Employed in Construction: A Reference Book for the Use of Inspectors, Superintendents, and Others Engaged in the Construction of Public and Private Works.** By Austin T. Byrne. Rev. by Samuel T. Goldsmith, Assoc. M. Am. Soc. C. E. Fourth Edition. N. Y., 1930. 244 pp., diagrams, tab., 8 x 5 in., ½ cloth. (Gift of Mr. Goldsmith.)

This book contains memoranda pertaining to the duty of inspectors, quality and defects of materials, requisites for good construction, methods of slighting work, etc. In this Fourth Edition, advantage has been taken to condense as much as possible the subject matter of previous editions, and, at the same time, to revise or alter the text where it was found necessary.

**Tensile Properties of Rail and Some Other Steels at Elevated Temperatures.** By John R. Freeman, Jr., and G. Willard Quick. (*Research Paper No. 164.* Reprint from Bureau of Standards *Journal of Research*, Vol. 4, 1930.) Washington, D. C., U. S. Dept. of Commerce. 42 pp., illus., charts, diagrams, 9 x 6 in., paper. 20 cents.

The data presented in this report are stated to be principally the results of a survey made to determine the extent to which the phenomenon of "secondary brittleness" exists, together with a discussion of the influence its presence in a steel may have on its final quality. Data are also given on the temperature gradients existing in a rail during cooling in air and when quenched in water.

**Weather and Flight.** By Ford Ashman Carpenter, Affiliate, Am. Soc. C. E. Los Angeles, Calif., The Author, 1930. 33 pp., illus., diagrams, tab., maps, 10½ x 7 in., ½ cloth. (Gift of Mr. Carpenter.)

This is Volume IV of the collected works which have been issued biennially since September, 1919. In it are included thirty-three separate reprints of articles by the author on aeronautics and the related climatic conditions which have been presented by him on lecture tours, or published from time to time in standard periodicals.



## Current Civil Engineering Literature

### Key to Abbreviated References to Publications Indexed\*

Abbreviated References.	Publication.	Place.
Am. C. Inst.....	American Concrete Institute, Journal (M.)	Detroit
A. I. E. E.....	American Institute of Electrical Engineers Journal (M.)	New York
A. R. E. A.....	American Railway Engineering Association, Proceedings (Y.)	Chicago
A. S. T. M.....	American Society for Testing Materials, Proceedings (Y.)	Philadelphia
Am. Soc. C. E.....	American Society of Civil Engineers, Proceedings (M.)	New York
Am. Soc. Mun. Impvts.	American Society for Municipal Improvements, Proceedings (Y.)	New York
Am. W. W. Assoc.....	American Water Works Association, Journal (M.)	Baltimore
Am. Wood Pres. Assoc.	American Wood Preservers Association, Proceedings (Y.)	Chicago
Ann. P. et C.....	Annales des Ponts et Chaussées (BI-M.)	Paris
Ann. T. P. Belg.....	Annales des Travaux Publics de Belgique (BI-M.)	Brussels
Assoc. Ing. Gand.....	Annales de l'Association des Ingénieurs sortis des Ecoles Spéciales de Gand (Q.)	Ghent
Bost. Soc. C. E.....	Boston Society of Civil Engineers, Journal (M.)	Boston
Can. Engr.....	Canadian Engineer (W.)	Toronto
City Plan.....	American City Planning Institute (Q.)	Boston
Comwth. Engr.....	Commonwealth Engineer (M.)	Melbourne
Conc.....	Concrete (M.)	Chicago
Cornell C. E.....	Cornell Civil Engineer (M.)	Ithaca
Dock & Harbour.....	Dock and Harbour Authority (M.)	London
Eng.....	Engineering (W.)	London
Eng. & Contr.....	Engineering and Contracting (M.)	Chicago
Eng. Inst. Can.....	Engineering Institute of Canada, Journal (M.)	Montreal
Eng. N. R.....	Engineering News-Record (W.)	New York
Engr. Soc. W. Pa.....	Engineers' Society of Western Pennsylvania, Journal (M.)	Pittsburgh
Engr.....	Engineer (W.)	London
Engrs. & Eng.....	Engineers and Engineering, Engineers' Club of Philadelphia (M.)	Philadelphia
Gas und Wasser.....	Gas und Wasserfach (M.)	Munich
Gen. Civ.....	Le Génie Civil (W.)	Paris
Gesund. Ing.....	Gesundheits Ingenieur (W.)	Munich
Inst. C. E.....	Institution of Civil Engineers Minutes of Proceedings (Q.)	London
Inst. Mun. & Co. Engrs.	Institution of Municipal and County Engineers, Journal (W.)	London
Int. Ry. Cong. Assoc.	International Railway Congress Association, Bulletin (M.)	Brussels
Land. Arch.....	Landscape Architecture (Q.)	Boston
Mech. Eng.....	Mechanical Engineering (M.), Journal of the American Society of Mechanical Engineers	New York
Mil. Engr.....	Military Engineer (BI-M.)	Washington
Min. & Metal.....	Mining and Metallurgy (M.), American Institute of Mining Engineers	New York
N. E. W. W. Assoc.....	New England Water Works Association, Journal (Q.)	Boston
N. Y. R. R. Club.....	New York Railroad Club, Proceedings (M.)	Brooklyn
Oest. Ing. Arch. Ver.	Oesterreichischer Ingenieur und Architekten Verein, Zeitschrift (F.)	Vienna
Power.....	Power (W.)	New York
Public W.....	Public Works (M.)	New York
Rev. Gen.....	Revue Générale des Chemins de Fer (M.)	Paris
Ry. Age.....	Railway Age (W.)	New York
Ry. Eng. & Main.....	Railway Engineering and Maintenance (M.)	Chicago
R. & S.....	Roads and Streets (M.)	Chicago
Schw. Bauz.....	Schweizerische Bauzeitung (W.)	Zurich
Sci. Am.....	Scientific American (M.)	New York
Soc. Ing. Civ. Fr.....	Société des Ingénieurs Civils de France, Mémoires et Comptes Rendus (Q.)	Paris
Tech. Gemein.....	Technisches Gemeindeblatt (F.)	Berlin
Ver. deu. Ing.....	Verein deutscher Ingenieure, Zeitschrift (W.)	Berlin
W. W. & Sewer.....	Waterworks and Sewerage (M.)	Chicago
West. City.....	Western City (M.)	Los Angeles
West. Constr. N.....	Western Construction News (F.)	San Francisco
West. Ry. Club.....	Western Railway Club, Proceedings (M.)	Chicago
West. Soc. Engrs.....	Western Society of Engineers, Journal (M.)	Chicago
Zeit. Bau.....	Zeitschrift für Bauwesen (Q.)	Berlin
Z. d. Bauver.....	Zentralblatt der Bauverwaltung (W.)	Berlin

\* Y = Yearly; Q = Quarterly; M = Monthly; F = Fortnightly; W = Weekly.

**A. Applied Sciences****a. Processes of Calculation****2. Graphical and Nomographical Processes**

Design of Retaining Walls.\* W. W. Hay. Conc. Apr., '30.

**3. Stresses and Strains**

Problems Concerning Elastic Stability in Structures.\* Discussion: S. Timoshenko. Am. Soc. C. E. Apr., '30.

Analytical Solution of Masonry Domes: Unbalanced Loads.\* Discussion: A. Floris and David C. Coyle. Am. Soc. C. E. Apr., '30.

**B. Applied Mechanics****a. Mechanics of Solids****1. Processes of Measurement and Method of Testing**

Experimental Research on Vibration Dampers and Insulators.\* Discussion: W. M. Dawley and Stephen E. Slocum. Am. Soc. C. E. May, '30.

**2. Elastic Solids**

Analysis of Continuous Frames by Distributing Fixed-End Moments.\* Hardy Cross. Am. Soc. C. E. May, '30.

**4. Riveted Systems**

Connection Angles Subjected to Bending.\* Norman B. Green. West. Constr. N. Mar. 10, '30. Practices in Flame-Cutting of Steel Reported Harmful.\* Eng. N. R. Apr. 24, '30.

Design of Steel Slabs for Column Bases.\* Kenneth G. Merriam. (Paper read before Am. Inst. Steel Constr.) Eng. & Contr. Mar., '30.

**6. Heterogeneous Solids (Reinforced Materials)**

Test of Unusual Reinforced-Concrete Beam.\* G. O. Thomas. Comwlth. Engr. Apr., '30.

Simplified Formulae for the Design of Reinforced Concrete Tee Beams.\* R. Warwick Reynolds. Eng. May 9, '30.

Safety Factor and Economy.\* V. Bogvad-Christensen. West. Constr. N. May 10, '30.

Test of Steel Floor Framing Encased in Concrete.\* (Report of Special Comm.) West. Soc. Engrs. June, '30.

Calcul des Conduites en Béton Armé.\* (Calculation of Reinforced Concrete Conduits.) H. Masson. Ann. P. et C. Pt. 1, '30.

**7. Pulverulent Masses**

Earth Pressure.\* Eng. Serial beginning May 30, '30.

**b. Hydraulics****1. Processes of Measurement**

Effect of Turbulence on the Registration of Current Meters.\* Discussion: Carl Rohwer, Brehon B. Somervell, N. C. Grover, Burke L. Bigwood, G. H. Nettleton, and C. Linden. Am. Soc. C. E. May, '30.

**2. Physical Hydraulics**

Welded Penstock Used in Italian High-Head Project.\* R. W. Miller. Power June 3, '30.

Alternate Stages and Critical Depth in Circular Hydraulic Conduits.\* Thomas R. Camp. Eng. N. R. June 19, '30.

Die Wasserbau-Versuchsanlagen am Walchensee.\* (The Hydraulic Testing Plant on the Walchensee.) Otto Kirschmer. Ver. deu. Ing. Jan. 11, '30.

Ein Beitrag zur Klärung der Wasserbewegung. (A Contribution to the Explanation of the Movement of Water.) A. Reuther. Serial beginning March 15, '30.

Vergleichs-Wassermessungen am Walchenseewerk.\* (Comparative Water Measurements at the Walchensee Plant.) O. Kirschmer. Ver. deu. Ing. Apr. 26, '30.

**3. Industrial Pneumatics**

Hydraulic and Mechanical Features of Bellows Falls Hydro-Electric Plant of the New England Power System.\* Edwin A. Dow. Bost. Soc. C. E. Mar., '30.

The Shannon Power Development in the Irish Free State.\* A. R. C. Markl. Am. Soc. C. E. Apr., '30.

Ice as Affecting Power Plants. (Final Report of Comm. of Power Division.) Am. Soc. C. E. Apr., '30.

Pumped-Storage Hydro-Electric Plants. Discussion: William W. K. Freeman. Am. Soc. C. E. Apr., '30.

Saku Hydroelectric Project, Japan.\* S. Shimodao. West. Constr. N. Apr. 10, '30.

Ariel Hydroelectric Project, Lewis River, Washington.\* O. L. LeFever. West. Constr. N. Apr. 10, '30.

Power Development on the Magog River.\* Vernon R. Davies. Can. Engr. Apr. 29, '30.

Niagara Power. Discussion: Norman R. Gibson. Am. Soc. C. E. May, '30.

Mokelumne Hydroelectric Project, California, of the Pacific Gas and Electric Company.\* Phillip Schuyler. West. Constr. N. May 25, '30.

Mokelumne Project to Develop 170 000 Hp.\* A. H. Markwart. Power May 27, '30.

Ice Problems in Power Development. John Murphy. (From paper read before World Power Conference, Tokyo.) Can. Engr. May 27, '30.

Power Possibilities of Catawba River Highly Developed Through Stream Control.\* Eng. N. R. June 19, '30.

Regulation des Turbines Hydrauliques.\* (Regulation of Hydraulic Turbines.) Louis Barbillon. Soc. Ing. Civ. Fr. May-June, '29.

Die Stromversorgung des Irischen Freistaates.\* (The Electric Supply System in the Irish Free State.) H. Wallem. Ver. deu. Ing. Serial beginning May 3, '30.

Das Limmatwerk Wettingen der Stadt Zürich.\* (The Wettingen Limmat Plant for Zurich.) Schw. Bauz. May 3, '30.

Spitzendeckungsproblem beim Zusammenarbeiten von Dampf- und Wasserkraftanlagen.\* (Supplying Peak Loads by Co-Operation of Steam and Water Power Plants.) Ludwig Musil. Oest. Ing. Arch. Ver. May 9, '30.

Das Grosskraftwerk Finkenheerd unter besonderer Berücksichtigung der Wärmewirtschaft.\* (The Finkenheerd Large Power Plant, with Special Consideration of the Thermal Efficiency.) G. Warrelmann. Ver. deu. Ing. May 31, '30.

#### 4. Dams

Concreting Methods at the Chute A Caron Dam.\* I. E. Burks. Am. C. Inst. Feb., '30.  
Do Multiple Dome Type Dams Develop Dome Action.\* A. Floris. West. Constr. N. Mar. 10, '30.  
New Bridge and Dam at Arnprior, Ont.\* George S. M. Grimmer. Can. Engr. Mar. 25, '30.  
Control of Cracking in Concrete Dams.\* Lewis S. Tuthill. West. Constr. N. Apr. 10, '30.  
Engineering Foundation Committee on Arch Dam Investigation.\* Discussion: Fredrik Vogt. Am. Soc. C. E. May, '30.

#### x. Miscellaneous

Die Versuchsanstalt für Wasserbau an der Eidg. Technischen Hochschule Zürich.\* (Research Institute for Hydraulic Construction of the Zurich Federal Technical High School.) E. Meyer-Peter. Schw. Bauz. Serial beginning Apr. 19, '30.

### C. Materials of Construction and General Processes

#### a. Lime, Cement, Mortar, Concrete, Brick, Bitumin, Timber, etc.

A Summary of the Results of Investigations Having to do With Volumetric Changes in Cements, Mortars and Concrete, Due to Causes Other Than Stress.\* (Report of Comm. 102.) Raymond E. Davis. Am. C. Inst. Feb., '30.  
Study of Methods of Curing Concrete.\* H. F. Gonnerman. Am. C. Inst. Feb., '30.  
Developing a Sand Deposit Near Mt. Flinders, Victoria.\* Comwlth. Engr. Mar., '30.  
The Coloration of Concrete. (Report of Comm. 703.) Am. Conc. Inst. Apr., '30.  
Shrinkage Measurements of Concrete Masonry. W. D. M. Allan. Am. Conc. Inst. Apr., '30.  
Developments in Concrete Aggregates.\* Herbert J. Gilkey. Conc. May, '30.  
Les Progrès dans la Fabrication des Ciments Hydrauliques.\* (Progress in the Manufacture of Hydraulic Cements.) Edmond Marcotte. Gen. Civ. May 31, '30.  
Les Bancs de Sable. Etudes Basées sur les Sondages et Mesures de Débit du Volga à Saratov.\* (Sand Banks. Studies Based on Soundings and Discharges of the Volga at Saratov.) A. Frolow. Soc. Ing. Civ. Fr. May-June, '29.

#### b. Metals

Die mechanischen Eigenschaften des Gusseisens. (Mechanical Properties of Cast Iron.) A. Thum and H. Ude. Ver. deu. Ing. Mar. 1, '30.  
Neuzeitliche Entwicklung des Edlstahls.\* (Modern Development of Super-Refined Steel.) P. Goerens. Ver. deu. Ing. Mar. 8, '30.  
Neuere Untersuchungen über die Rekristallisation der Metalle.\* (Recent Investigations on the Recrystallization of Metals.) J. Weerts. Ver. deu. Ing. Mar. 29, '30.  
Istegstahl im Wohn- und Industriebau.\* (Expanded Steel in Residence and Industrial Construction.) I. A. Kirchner. Oest. Ing. Arch. Ver. Apr. 25, '30.

#### c. Preservation and Use of Materials, Painting, Waterproofing

Einflüsse des Seewassers auf Anstriche.\* (Effect of Seawater on Paints.) Bärenfänger. Ver. deu. Ing. Mar. 22, '30.

#### e. Earthwork, Cubage, Excavating Machinery

Modern Excavation. Geo. B. Massey. West. Soc. Engrs. Feb., '30.

#### f. Rock Excavation, Mining, Rock Removal

Installations Pour la Manutention du Mineral de Fer au Port de Bône (Algérie), Executées par la Société de l'Ouenza.\* (Iron-Ore Handling Plant at the Port de Bône (Algiers), Built by the Société de l'Ouenza.) Henry Martin. Gen. Civ. Serial beginning Feb. 22, '30.

#### g. Execution of Works, Specifications

Building a 71-Story Skyscraper in 33 Weeks.\* Eng. N. R. May 15, '30.

#### 2. Of Concrete

Winter Concreting Methods. (Report of Comm. 604.) Robert C. Johnson. Am. C. Inst. Feb., '30.  
Proposed Specifications for Ready-Mixed Concrete. (Progress Report of Comm. 504.) Miles N. Clair. Am. C. Inst. Feb., '30.  
Specifications for the Small Job. S. C. Hollister. Am. C. Inst. Feb., '30.  
Recommended Practice for the Manufacture of Concrete Block and Building Tile. (Report of Comm. 708.) P. M. Woodworth. Am. C. Inst. Feb., '30.  
Design of Concrete Products Plants for Single or Multiple Shift Operation. (Report of Comm. 707.) Benj. Wilk. Am. C. Inst. Feb., '30.  
Some Tests of Concrete Masonry Units Cured With High Pressure Steam.\* P. M. Woodworth. Am. C. Inst. Feb., '30.  
The Design and Operation of Central Mixing Plants: A Symposium. (Report of Comm. 603.) Am. C. Inst. Mar., '30.  
Good Practice in Concrete Floor Finish.\* (Report of Comm. 802.) John G. Ahlers. Am. C. Inst. Mar., '30.  
Uniform Aggregate Specifications in Use in Detroit. L. G. Lenhardt. Eng. N. R. Apr. 17, '30.  
Simplified Specifications for Quality Controlled Structural Concrete.\* Conc. May, '30.  
Layout and Construction of a New Wet-Process Cement Plant in Texas.\* Terrell Bartlett. Eng. N. R. May 29, '30.  
Preliminary Studies and Control of Concrete on Port of New York Authority Work.\* A. W. Munsell. Eng. N. R. May 29, '30.

Thin Bridge Floors Concreted in Vermont Winter.\* Harold L. Tilton and F. B. Saunders. Eng. N. R. June 19, '30.

### 3. Of Wood

Festigkeits-Versuche an Holzverbindungen mit abgestuften, geschlossenen Ringdübeln.\* (Strength Tests on Wooden Connections with Stepped, Closed Ring Dowels.) Ch. Chopard. Schw. Bauz. Serial beginning Feb. 22, '30.

### 5. Of Reinforced Concrete

Specification for Supplying, Fabricating and Setting Reinforcing Steel on Ordinary Buildings.\* (Report of Comm. 503.) William F. Zabriskie. Am. C. Inst. Feb., '30.

Reinforced Concrete Column Investigation.\* (Progress Report of Comm. 105.) Am. Conc. Inst. Apr., '30.

Procédés pour le Calcul Rapide des Pièces en Béton Armé.\* (Processes for the Rapid Design of Reinforced Concrete Members.) Mabilieu. Ann. P. et C. Nov., '29.

Instructions Relatives aux Ouvrages en Béton par l'Association belge de Standardisation.\* (Instructions on Concrete Work by the Belgian Standardization Association.) Ann. P. et C. Pt. 1, '30.

Neuere Eisenbetonschornsteine.\* (New Reinforced Concrete Chimneys.) Z. d. Bauver. April 30, '30.

### h. Foundations, Bridge Piers and Abutments

Construction of the James River Bridge Project.\* Discussion: Willson T. Ballard. Am. Soc. C. E. Apr., '30.

Borings Show Foundation Suitable for Golden Gate Bridge Piers.\* Eng. N. R. Apr. 10, '30. Chicago Concrete Building Presents Difficult Foundation Problems.\* S. E. Berkenblit. Eng. N. R. Apr. 10, '30.

Unusual Foundation Procedure for 71-Story Building.\* W. T. McIntosh. Eng. N. R. Apr. 24, '30.

Precast Concrete Caissons for Piers and Docks Floated Into Place.\* P. W. Leisner. Conc. May, '30.

Construction of the James River Bridge Project. Discussion: William Willoughby. Am. Soc. C. E. May, '30.

Construction Problems of Lake Union Bridge Substructure.\* F. W. Crocker. West. Constr. N. May 10, '30.

Vibration Effects on Foundations and Masonry Structures. Eng. N. R. May 29, '30.

End Bearings of Bridge Allow for Shifting of Abutments.\* Eng. N. R. May 29, '30.

Représentation Géométrique de l'Etat Triple de Tension.\* (Geometric Representation of the Triple State of Tension.) F. Campus. Gen. Civ. Mar. 22, '30.

### i. Piles and Pile-Driving

Rapid Driving of 2,600 Wood Piles on a Chicago Building.\* J. D. Levin. Eng. N. R. Apr. 17, '30.

Spundwandrammung durch altes Pfahlwerk.\* (Driving Sheet Piling with an Old Pile Driver.) Natermann. Z. d. Bauver. Mar. 26, '30.

### k. Tunnels and Tunneling-Shields

New Mountain Railroad has 6,200-Ft. Tunnel.\* L. M. Jordan. Mar., '30.

Completion of Moffat Tunnel of Colorado.\* Clifford Allen Betts. Am. Soc. C. E. Apr., '30.

Rim Drilling and Broaching Used in Driving and Enlarging N. Y. C. R. R. Tunnels.\* Eng. N. R. Apr. 17, '30.

Channel Tunnel Gets Indorsement.\* Eng. N. R. Apr. 17, '30.

Railroad Tunnel Refloored Under Traffic When Walls Settle.\* Eng. N. R. Apr. 24, '30.

Driving Sewer Tunnels Through Quicksand Under Air.\* Victor J. Brown. Eng. & Contr. May, '30.

Driving Sewer Tunnels Through Quicksand Under Air.\* Victor J. Brown. W. W. & Sewer. May, '30.

Appareil Enregistreur de la Distance des Parois des Souterrains par Rapport au Gabarit de Chargement, Dit "Appareil Pichon".\* (Recording Apparatus, Called the "Pichon Apparatus", for Determining the Spacing of Tunnel Walls in Relation to the Tunnel Gage.) Virot. Rev. Gen. Mar., '30.

Le Tunnel Routier sous la Rivière de Detroit, Reliant le Canada aux Etats-Unis.\* (The Highway Tunnel under the Detroit River, Connecting Canada and the United States.) Gen. Civ. Apr. 12, '30.

Der Detroit-Kanada-Unterwassertunnel. (The Detroit-Canada Subaqueous Tunnel.) Haller. Z. d. Bauver. Apr. 23, '30.

### l. Construction Machinery and Tools. Drainage

Development of the Dragline Excavator.\* J. C. French. Eng. N. R. Apr. 3, '30.

Weighing Hoppers and Scales: A New Tool for Precise Concrete Control.\* F. M. Tebbs. Eng. N. R. Apr. 3, '30.

North Approach to Suisun Bay Bridge for Southern Pacific Co. Near Benicia, California.\* West. Constr. N. Apr. 25, '30.

Maschinen zur Bodenentwässerung.\* (Machinery for Land Drainage.) Ver. deu. Ing. Feb. 1, '30.

## D. Highways

### c. Construction

Priming and Sealing a Sand-Clay Road in Victoria.\* C. G. Roberts. Comwlth. Engr. Feb., '30.

The Sub-Grade in City Street Construction.\* A. H. Munro. Comwlth. Engr. Feb., '30.

Highway Planning in the Chicago Region.\* Robert Kingery. West. Soc. Engrs. Feb., '30.



- Resurfacing and Salvaging Existing Pavements. (From Report of Am. Road Bldrs. Assoc.) R. & S. Mar., '30.
- The Great Northern Highway, New South Wales.\* Comwlth. Engr. Mar., '30.
- Eliminating a Bend in the Melbourne-Geelong Road.\* J. Mathieson. Comwlth. Engr. Mar., '30.
- Shoring of Steep Sandhill Presents Problem in San Francisco Boulevard Construction.\* C. M. Taylor. R. & S. Mar., '30.
- Oil-Processing Roads in New Mexico.\* R. W. Bennett. West. Constr. N. Mar. 25, '30.
- Bituminous Surface for Concrete Roads. W. H. Sharp. (Paper read before Annual Asphalt Pav. Conference.) Can. Engr. Mar. 25, '30.
- Structures for Eliminating Grade Crossings.\* (From Report of Comm. of Am. Road Bldrs. Assoc.) R. & S. Apr., '30.
- Simplification of Sizes of Aggregates. F. H. Jackson. (Paper read before Nat'l Sand & Gravel Assoc.) R. & S. Apr., '30.
- Bituminous Retread in Missouri.\* C. P. Owens. (Paper read before Southwest Road Show & School.) R. & S. Apr., '30.
- Bituminous Surface Treatments in North Dakota.\* J. N. Roherty. (From *Highway Bulletin*, Dept. of State Highways.) Public W. Apr., '30.
- Low-Cost Surfaces and Surface Treatment.\* B. E. Gray. (Paper read before W. Virginia Road Bldrs. Assoc.) Public W. Apr., '30.
- Bituminous Material for Subgrades. C. A. Hogenthaler and Henry Aaron. (Paper read before Asphalt Pav. Conference.) Can. Engr. Apr. 1, '30.
- Typical Concrete Pavements in B. C.\* Can. Engr. Apr. 1, '30.
- Standardization of Low-Cost Roads. Prevost Hubbard. (Paper read before Asphalt Pav. Conference.) Can. Engr. Apr. 1, '30.
- Economics of Road Surfaces.\* W. J. Noel Bryce. Inst. Mun. & Co. Engrs. Apr. 1, '30.
- Country Roads and Airport Pavements. George C. Warren. (Paper read before Am. Road Bldrs. Assoc.) Can. Engr. Apr. 8, '30.
- Highway Construction in Colorado River Canyon.\* John J. Vandermoer. West. Constr. N. Apr. 10, '30.
- Lake Keechelus Vicinity Project, State Road No. 2, Washington.\* F. W. Gloor. West. Constr. N. Apr. 10, '30.
- Standardization of Low-Cost Roads. H. S. Fairbank. (From paper read before Asphalt Pav. Conference.) Can. Engr. Apr. 15, '30.
- Modernizing the Widest Business Street in America.\* Eng. N. R. Apr. 17, '30.
- Standard Paving for Airport Runways. R. H. Simpson. (From paper read before Asphalt Pav. Conference.) Can. Engr. Apr. 22, '30.
- Effect of Frost Action on Highways. W. C. Buetow. (From paper read before Asphalt Pav. Conference.) Can. Engr. Apr. 22, '30.
- Rational Design of Asphaltic-Oil Roads.\* H. G. Nevitt. Eng. N. R. Apr. 24, '30.
- Road Construction in Manchester.\* H. C. Swindells. Inst. Mun. & Co. Engrs. Apr. 29, '30.
- Overcoming Paving Difficulties in West Virginia.\* Conc. May, '30.
- Cotton in Road Construction.\* H. S. Johnson. R. & S. May, '30.
- Retread Construction in New York. Guy W. Pinck. (Paper read before Highway Officials of North Atlantic States.) R. & S. May, '30.
- Protection of Roads and Bridges Against Stream Erosion.\* John L. Stewart. (Paper read before Purdue Road School.) R. & S. May, '30.
- Street Maintenance and Construction in a Small Municipality.\* A. T. Rhodes. Public W. May, '30.
- Eliminating Wash-Boards on Macadam Roads.\* N. W. Hardenbergh. Public W. May, '30.
- Making the Road Money Go Further.\* Geo. E. Martin. Public W. May, '30.
- Shoulder Hardening and Maintenance.\* George E. Hamlin. (Paper read before Highway Officials of North Atlantic States.) R. & S. May, '30.
- Retread Road Construction in Canada.\* Geo. E. Martin. Can. Engr. May 6, '30.
- Concrete and Asphalt Road Surfacing in an Urban Area.\* R. E. L. Clarke. Inst. Mun. & Co. Engrs. May 13, '30.
- Retread on the Ferguson Highway.\* Wm. Finlayson. Can. Engr. May 20, '30.
- Highway Fills Across Swamps in the Louisiana Delta.\* H. B. Henderlite and John J. Mundinger. Eng. N. R. May 29, '30.
- Drainage in Road Construction.\* R. & S. June, '30.
- Penetration Macadam, Design and Construction. C. L. Wooley. (Paper read before Assoc. State Highway Officials of N. Atlantic States.) R. & S. June, '30.
- Time Studies of Highway Contract Operations.\* C. F. Rogers. (Paper read before Univ. of Colorado.) R. & S. June, '30.
- Low-Cost Road Construction Methods. (From Report issued by U. S. Bureau of Public Roads.) Can. Engr. June 3, '30.
- Progress in Superhighway Planning and Construction, Detroit Region.\* Edward N. Hines. Eng. N. R. June 5, '30.
- La Technique des Virages Relevés sur les Routes.\* (The Technique of Banking on Roads.) Roger Bégard. Gen. Civ. Jan. 18, '30.
- L'Emploi du Caoutchouc dans les Revêtements de Chaussées.\* (The Use of Rubber in Street Pavements.) Jacques Thomas. Gen. Civ. Mar. 8, '30.
- Teerstrassen für mittleren und schweren Verkehr. (Tar Roads for Medium and Heavy Traffic.) Müller. Gas und Wasser. Mar. 22, '30.

#### d. Maintenance

- Light Surfaced Roads in Kansas.\* Ira E. Taylor. (Paper read before Southwest Road Show & School.) R. & S. Apr., '30.
- Gravel Road Maintenance in Nebraska.\* A. C. Tilley. (Paper read before Southwest Road Show & School.) R. & S. Apr., '30.
- Methods and Cost of Highway Maintenance in South Carolina.\* W. L. Hardeman. Public W. Apr., '30.
- Maintenance of Roads in Townships. E. M. Lester. (Paper read before Conference on Road Constr.) Can. Engr. Apr. 8, '30.



- Concrete Pavement Maintenance. E. J. Vaughan. (Paper read before Univ. of Michigan.) R. & S. May, '30.  
 The Maintenance of "Washboard" Macadam Roads. N. W. Hardenbergh. (Paper read before Highway Officials of North Atlantic States.) R. & S. May, '30.  
 Earth Slip Hazards and Control in Highway Maintenance.\* William S. Downs. Eng. N. R. May 15, '30.  
 Mitigating Frost Action on Road Surfaces.\* Eng. N. R. June 19, '30.

#### e. Street Cleaning, Dust Prevention, Snow Removal

- Cleaning the Streets and Keeping Them Clean. E. Philip Fredericks. R. & S. Mar., '30.  
 Street Cleaning in Toronto. R. & S. May, '30.  
 Le Concours International d'Appareils Chasse-Neige du Touring-Club de France (11-15 février 1930).\* (The International Competition of Apparatus for Snow Removal, of the Touring Club of France, February 11-15, 1930.) Jacques Thomas. Gen. Civ. Mar. 22, '30.  
 Mikroskopische Staubbestimmungen. Beitrag zur Wertung von Strassenreinigungsverfahren.\* (Microscopic Determinations of Dust, Contribution to the Evaluation of Street-Cleaning Methods.) Karl L. Pesch. Gesund. Ing. Feb. 1, '30.  
 Strassenbau und Verkehrshygiene.\* (Road Building and Traffic Hygiene.) Vaccano. Gesund. Ing. May 31, '30.

#### g. Machinery and Tools

- In the City of Seattle a Mountain Goes to the Sea.\* K. Archibald. West. City Apr., '30.  
 Improvements in Asphalt Paving Plant Equipment and Methods.\* H. C. McClure. (Paper read before Asphalt Pav. Conference.) R. & S. Apr., '30.  
 Paving Plant Equipment and Methods. H. C. McClure. (Paper read before Asphalt Pav. Conference.) Can. Engr. June 3, '30.  
 Strassenfertiger und Strassenwalzen.\* (Road Finisher and Road Rollers.) E. Neumann. Ver. deu. Ing. Apr. 26, '30.

#### h. Vehicles, Automobiles, Traffic

- Present Day Traffic Problems.\* (Report of Am. Road Bldrs. Assoc.) R. & S. Mar., '30.  
 Street Traffic Signs.\* (From Report of Am. Eng. Council.) R. & S. Mar., '30.  
 Enlarging Facilities for Distance Travel Within Great Urban Centers.\* Sidney D. Waldon. (Paper read before Soc. Automotive Engrs.) R. & S. Mar., '30.  
 State Traffic Control in Massachusetts.\* Maxwell Halsey. (Paper read before Univ. of Michigan.) R. & S. Mar., '30.  
 Capacity and Efficiency Most Needed in Signalling.\* J. Rowland Bibbins. Engrs. & Eng. Apr., '30.  
 County Highway Traffic Control and Regulation. Hawley S. Simpson. (Paper read before Univ. of Michigan.) R. & S. Apr., '30.  
 Eliminating Street Traffic Intersections.\* Fritz Malcher. (From *American City*.) Can. Engr. Serial beginning Apr. 22, '30.  
 Control of Highway Loading. J. T. Sharpsteen. (Paper read before Univ. of Michigan.) R. & S. May, '30.  
 Urbanisme et Circulation. (Urbanism and Traffic.) Pierre Bourdeix. Soc. Ing. Civ. Fr. May-June, '29.  
 Economics of Highway Detours.\* W. A. Van Duzer. (Paper read before Highway Officials of N. Atlantic States.) R. & S. June, '30.  
 The Widening and Planning of Highways.\* D. R. Lamson. R. & S. June, '30.

### E. Bridges, Viaducts and Arches

#### a. Timber Bridges and Viaducts

- Fraser River Bridge at Quesnel, B. C.\* Patrick Phillip. (Paper read before Am. Wood Frsrs. Assoc.) Can. Engr. June 3, '30.

#### b. Iron and Steel Bridges and Viaducts

- Definite Steps Taken Toward Construction of Golden Bridge.\* Joseph B. Strauss. West. City Mar., '30.  
 Longview-Rainier Interstate Toll Bridge Completed.\* West. Constr. N. Mar. 10, '30.  
 The \$7 500 000 Mississippi River Bridge Project at Vicksburg, Miss.\* O. J. Hand. Eng. & Contr. Apr., '30.  
 General Specifications for Steel Railway Bridges. Discussion: C. H. Chapin, Hunter McDonald, A. F. Blaess, and C. R. Harding. Am. Soc. C. E. Apr., '30.  
 New Bridge for Kettle Creek Valley.\* Warren C. Miller. Can. Engr. Apr. 15, '30.  
 The First Arc-Welded Bridge in Europe.\* Stefan Bryla. Eng. N. R. Apr. 17, '30.  
 The Sydney Harbour Bridge.\* Eng. Serial beginning Apr. 18, '30.  
 Reinforcement in Place of the Stoney Creek Arch Bridge.\* P. B. Motley. Eng. Inst. Can. May, '30.  
 General Specifications for Steel Railway Bridges.\* (Prepared by Comm. from Am. Soc. C. E. and Am. Ry. Eng. Assoc.) Discussion: G. G. Thomas, Henry S. Jacoby, Glenn B. Woodruff, Harold C. Bird, W. A. Duff, Charles Stratton Davis, C. D. Purdon, G. E. Tebbets, J. R. Worcester, D. B. Carpenter, D. B. Steinman, W. Chase Thomson, Jonathon Jones, and P. G. Lang, Jr. Am. Soc. C. E. May, '30.  
 The Re-Girding of the Lower Sone Bridge; East Indian State Railway.\* Eng. May 2, '30.  
 Progress on Sydney Harbor Bridge.\* Eng. N. R. May 8, '30.  
 Lake Union Bridge, Seattle, Washington.\* West. Constr. N. May 10, '30.  
 The 1 200-Ft. Cantilever Bridge at Longview, Wash.\* Clifford E. Paine. Eng. N. R. May 15, '30.  
 Montreal Harbor Bridge Superstructure.\* Can. Engr. May 20, '30.  
 High Viaduct 3 Miles Long Will Complete Gap in Holland Tunnel Road.\* Eng. N. R. June 12, '30.

Old Iron Viaduct Retired After 46 Years.\* J. E. Bebb and L. B. Alexander. Ry. Age June 14, '30.

Die neue Strassenbrücke über den Rhein in Köln-Mülheim.\* (The New Highway Bridge Over the Rhine in Cologne-Muelheim.) Ver. deu. Ing. Feb. 8, '20.

Der Umbau der Augartenbrücke in Wien.\* (Rebuilding the Augarten Bridge in Vienna.) Ludwig Hoesval. Oest. Ing. Arch. Ver. Apr. 11, '30.

#### d. Concrete and Reinforced Concrete Bridges and Viaducts

New Bridge and Dam at Arnprior, Ont.\* George S. M. Grimmer. Can. Engr. Mar. 25, '30. Method of Constructing Long Viaduct of Concrete Arches.\* Merrill Butler and A. L. Enger. Eng. N. R. Mar. 27, '30.

Plastic Flow in Concrete Arches. Discussion: B. F. Jakobsen and C. A. P. Turner. Am. Soc. C. E. Apr., '30.

Road Bridge Over Loddon River at Eddington, Victoria.\* M. G. Dempster. Comwlth. Engr. Apr., '30.

A New Departure in Bridge Building.\* Herbert E. Steinberg. Sci. Am. Apr., '30.

Longest Multiple-Arch Concrete Highway Bridge to Span Susquehanna River.\* Charles M. Nelson. Eng. & Contr. Mar., '30.

Ingenious Construction on Mill Street Bridge, Watertown, N. Y.\* E. H. Harder. Eng. N. R. Apr. 10, '30.

Washington St. Bridge and Sixth St. Viaduct for Los Angeles.\* H. H. Winter. West. Constr. N. Apr. 25, '30.

Plastic Flow in Concrete Arches. Discussion: Edward Godfrey, J. H. Griffith, and Charles W. Comstock. Am. Soc. C. E. May, '30.

The Behavior of a Reinforced Concrete Arch During Construction.\* Discussion: Clyde T. Morris, C. A. P. Turner, and Douglas E. Parsons. Am. Soc. C. E. May, '30.

Concrete Arch Bridge Carries Pipe Line.\* F. M. Preston. Can. Engr. May 27, '30.

Construction d'un Pont en Béton Armé de 26 m. 60 d'Ouverture, sur l'Oued Ouziène, au Maroc Oriental.\* (Construction of a 26.60 m.-Span Reinforced Concrete Bridge Over the Oued Ouziène in Eastern Morocco.) Lamorre. Ann. P. et C. Nov., '29.

L'Elargissement du Pont de la Concorde, à Paris.\* (Widening of the Pont de la Concorde, Paris.) Gen. Civ. Feb. 8, '30.

Die Hochbrücke über die Ammer bei Echelsbach.\* (The Bridge Over the Ammer at Echelsbach.) Ferdinand Düll. Ver. deu. Ing. May 17, '30.

#### f. Suspension Bridges, Transfer Bridges

Manufacturing High-Modulus Footbridge Ropes for Fort Lee Hudson River Bridge.\* C. C. Sunderland. Eng. N. R. May 1, '30.

New Suspension Bridge Spans Royal Gorge in Colorado.\* George E. Cole. Eng. N. R. June 5, '30.

Vom Bau der Hängebrücke über den Hudson bei Neuyork.\* (On the Construction of the Suspension Bridge Over the Hudson at New York.) Herbst. Z. d. Bauver. May 21, '30.

#### g. Swing, Bascule, Lift, Floating, Oscillating Bridges; Traveling Cranes

Installation de Grue à Câbles Desservant un Espace Triangulaire, à Beuthen (Haute-Silésie).\* (Installation of a Cable Crane Requiring a Triangular Base, at Beuthen, Upper Silesia.) Gen. Civ. Mar. 29, '30.

L'Emploi du Pont Roulant dans les Grands Entrepôts Maritimes.\* (The Use of the Traveling Crane in Large Maritime Warehouses.) Sabouret. Gen. Civ. May 24, '30.

Die Abraumförderbrücke "Friedländergrube" der Braunkohlen- und Brickett-Industrie A.-G.\* (The Conveyor Bridge for Stripped Material at the "Friedländer" Mine of the Baunkohlen- und Brickett-Industrie A.-G.) L. Mann. Ver. deu. Ing. Mar. 15, '30.

#### h. Computations, Tests, etc.

Calculation of Continuous Girders Carried on Columns Rigidly Held at Their Bases.\* Leon Legens. Int. Ry. Cong. Assoc. Jan., '30.

Making Old Bridges Stronger.\* G. A. Haggander. (Paper read before West. Soc. Engrs.) Ry. Age Mar. 29, '30.

Working Stresses of Timber in Bridges. W. D. Keeney. Can. Engr. Apr. 1, '30.

Amerikanische Belastungsversuche an einer Eisenbeton-bogenbrücke mit Entlastungsöffnungen.\* (American Loading Tests on a Reinforced Concrete Arch Bridge with Open-Spandrels.) F. Kann. Z. d. Bauver. Jan. 8, '30.

Ein Schwimmelevator für 450 m<sup>3</sup>/h Leistung.\* (A Floating Elevator with a Capacity of 450 cu. m./hr.) G. Garbotz. Ver. deu. Ing. Mar. 8, '30.

Wärme- und Schwindspannungen in eingespannten Gewölben.\* (Heat and Contraction Stresses in Fixed Arches.) M. Ritter. Schw. Bauz. Serial beginning Mar. 15, '30.

#### x. Miscellaneous

Recent Developments in Bridge Superstructures. John Lyle Harrington. Engrs. Soc. W. Pa. Mar., '30.

Bridge Architecture. Wilbur J. Watson. Engrs. Soc. W. Pa. Mar., '30.

Die neuen Bundesstrassenbrücken in Oesterreich.\* (The New Federal Highway Bridges in Austria.) Ant. Hafner. Oest. Ing. Arch. Ver. Mar. 14, '30.

Zum Brückeneinsturz in Gartz a. d. O.\* (On the Bridge Failure in Gartz, a. d. O.) Leopold Herzka. Oest. Ing. Arch. Ver. Apr. 25, '30.

Die ersten interstaatlichen Brücken zwischen New York und New Jersey.\* (The First Interstate Bridge between New York and New Jersey.) O. H. Ammann. Schw. Bauz. Serial beginning May 31, '30.

### F. Inland Waters and Waterways

#### a. Natural Waterways (General Articles)

River Planning in the Missouri Basin.\* J. M. Young. Mil. Engr. Mar.-Apr., '30.

**b. Canals (General Articles)**

- The Chesapeake and Delaware Canal. Discussion: F. T. Chambers. Am. Soc. C. E. May, '30.  
Der Stand der Neckarkanalisation. (The Status of the Canalization of the Neckar.)  
Zeit. Bau. Apr., '30.  
Das Ausmündungsbauwerk der Kieler Kanalisation in die Ostsee. (The Construction for  
the Outlet of the Kiel Canal System into the Baltic Sea.) Kirchhofer. Z. d. Bauver.  
May 21, '30.

**c. Regulation of Waterways, Volumes of Discharge, Freshets, Floods, Soundings**

- Silt Transportation by Sacramento and Colorado Rivers and by the Imperial Canal.\* Dis-  
cussion: Ivan E. Houk. Am. Soc. C. E. Apr., '30.  
Regulation of Levels, Flow, and Navigation, Niagara River: Summary and Conclusions of  
Various Studies.\* Discussion: F. G. Ray. Am. Soc. C. E. Apr., '30.  
Flood Control of Lake Okeechobee.\* Mark Brooke. Mil. Engr. Mar.-Apr., '30.  
The Training Wall Across the Liao Bar in Manchuria.\* P. N. Fawcett. Am. Soc. C. E.  
May, '30.  
Regulation of Levels, Flow, and Navigation, Niagara River: Summary and Conclusions of  
Various Studies. Discussion: G. B. Pillsbury. Am. Soc. C. E. May, '30.  
Flowing Water.\* J. M. Lacy. Engr. Serial beginning May 23, '30.  
Die Hebungen und Senkungen der Rheinschle in der Strecke Landquartmündung-Bodensee.\*  
(The Elevations and Subsides of the Bed of the Rhine between Landquartmündung and  
Bodensee.) Schw. Bauz. Feb. 1, '30.  
Zur Methodik der Flusswasseruntersuchung.\* (On the Method of River Water Investiga-  
tion.) Ilzhöfer. Gesund. Ing. Apr. 5, '30.

**g. Consolidation of Banks, Leakage, Maintenance of Channel**

- Protecting Highway Bank from Floods.\* R. A. Hamilton. Public W. Mar., '30.  
Draglines and Industrial Railways, Tractors and Trailers in Levee Construction.\* Public W.  
Mar., '30.  
Tower-Excavator Performance and Costs on Three Types of Levee.\* Morris W. Gilland.  
Eng. N. R. Mar. 27, '30.  
The Pipe-Line Hydraulic Dredge.\* O. P. Erickson. Eng. N. R. Apr. 3, '30.  
Dredges and Draglines in Levee Construction.\* Public W. May, '30.  
Constructing Framed Mattress for Mississippi Revetment.\* Eng. N. R. May 1, '30.

**j. Dockyard Machinery and Shipyards, Dry Docks**

- City of Stockton Will Become Inland Port with 26-Foot Channel.\* W. B. Hogan. West.  
City Mar., '30.

**G. Maritime Works****b. Management and Protection of Coasts, Beaches, Dunes**

- Shore and Storm Protection on the Gulf Coast.\* J. B. Converse. Am. Conc. Inst. Apr., '30.  
Die Südwestschutzmauer auf Helgoland und ihre Vorgeschichte.\* (The Southwest Sea Wall  
at Helgoland and Its Evolution.) Verlohr and Bahr. Zeit. Bau. Serial beginning Feb., '30.

**c. Vessels and Maritime Navigation, Lighthouses, Buoys, Various Signals**

- The Automatic Stabilisation of Ships.\* Engr. Serial beginning Apr. 4, '30.  
Le Paquebot Transatlantique "Bremen" du Norddeutscher Lloyd.\* (The Transatlantic Liner  
"Bremen" of the North German Lloyd.) Gen. Civ. Jan. 18, '30.  
Le Paquebot à Moteurs Diesel "Lafayette" de la Compagnie Générale Transatlantique.\* (The  
Diesel Ship "Lafayette" of the Compagnie Générale Transatlantique.) Olivier Quéant.  
Gen. Civ. May 17, '30.  
Der Umbau der "Ballin" Klasse.\* (Rebuilding the "Ballin"-Klasse.) B. Bleicken. Ver.  
deu. Ing. Mar. 22, '30.  
Küstenschlepper für Jugoslawien.\* (Coastal Tugboat for Jugo-Slavia.) E. Gramoll. Ver.  
deu. Ing. May 17, '30.  
Der Schnelldampfer "Bremen."\* (The Express Ship "Bremen.") P. Biedermann, H. Hein  
and W. Koch. Ver. deu. Ing. May 24, '30.

**e. Navigation Locks**

- Construction of the New IJmuiden Lock.\* J. A. Ringers. Eng. N. R. May 8, '30.

**g. Dredges and Dredging. Force Pumps. Refloating and Removing Wrecks. Ice-Breakers**

- Some Record Outputs of Hydraulic Dredges.\* Mil. Engr. Mar.-Apr., '30.

**h. Wharves, Mooring Buoys, Harbor Equipment**

- \$2 800 000 Construction Combines Auditorium, Pier and Breakwater.\* C. M. Cram. West.  
City Mar., '30.  
The Municipal Pier and Bulkhead System of Long Beach, California.\* Mel Wharton. Eng.  
& Contr. Apr., '30.  
Mur de Quai "à Chaise" en Blocs Arrimés Munis de Tenons et Mortaises. ("A Chaise" Type  
of Seawall of Deposited Blocks Provided with Mortises and Tenons.) Sainflou. Ann. P.  
et C. Pt. 1, '30.

**i. Harbors**

- Port of Rangoon.\* Dock & Harbour May 30, '30.  
La Nouvelle Ecluse et la Nouvelle Forme de Radoub de Tilbury, près de Londres.\* (The  
New Lock and the New Type of Dockyard at Tilbury, near London.) P. Caufourier. Gen.  
Civ. Mar. 1, '30.

Le Port de Bordeaux et ses Annexes. Travaux en Cours d'Exécution à Bordeaux, à Bassens, à Pauillac et au Verdon.\* (The Port of Bordeaux and its Environs. Work Under Way at Bordeaux, Bassens, Pauillac and Verdon.) Auguste Pawlowski. Gen. Civ. Serial beginning Mar. 5, '30.

L'Extension du Port de Valence.\* (Extension of the Port of Valencia.) A. Ceresa. Gen. Civ. Apr. 5, '30.

Le Programme d'Extensions du Port de Marseille.\* (The Program for Extending the Port of Marseilles.) Auguste Pawlowski. Gen. Civ. Apr. 12, '30.

Le Port de Cherbourg. Travaux d'Extension et d'Amélioration.\* (The Port of Cherbourg. The Work on the Extension and Improvement.) Auguste Pawlowski. Gen. Civ. May 3, '30.

#### j. Dockyard Machinery and Shipyards, Drydocks

Schwimmdock für den Hafen von Bordeaux von 8 000 t Tragfähigkeit.\* (Floating Dock for the Port of Bordeaux, with a Carrying Capacity of 8 000 T.) E. Palmblad. Ver. deu. Ing. Feb. 15, '30.

Der Kalihafen in Bremen.\* (The Potash Docks in Bremen.) E. Overbeck. Ver. deu. Ing. Mar. 8, '30.

Vorarbeiten für das Schiffshebewerk Niederfinow.\* (Preliminary Works for the Niederfinow Ship-Lift.) Piarre. Z. d. Bauver. Serial beginning Apr. 2, '30.

### H. Railroads, Street and Interurban Railways, Automobiles, Aeronautics

#### a. Railroads

##### 1. General Articles

The South Manchuria Railway and Its Allied Constructions.\* J. A. L. Waddell. West. Soc. Engrs. Apr., '30.

Travaux d'Aggrandissement de la Gare de Vichy.\* (Enlarging the Vichy Station.) Ch. Sorgues. Rev. Gen. Feb., '30.

La Question des Transpyréneens et Celle de la Pénétration de la Voie Européenne en Espagne.\* (The Transpyrenees Question and That of the Extension of the European Railroad in Spain.) Garau. Rev. Gen. Apr., '30.

Amélioration de la Ligne de Paris à Limours (Chemin de Fer de Sceaux) à la Sortie de Paris.\* (Improvement of the Paris-Limours Line (Sceaux Railroad) at its Exit from Paris.) P. Caufourier. Gen. Civ. Apr. 26, '30.

Dauerbruch und Dauerfestigkeit. Erfahrungen aus dem Betrieb der Deutschen Reichsbahn.\* (Failure on Repeated Stress and Endurance Strength. Experiences from the Operation of the German Government Railway.) R. Kühnel. Ver. deu. Ing. Feb. 8, '30.

Über den Ausbau der Gürtellinie.\* (On the Development of the Gürtel Line.) Carl Hochenegg. Oest. Ing. Arch. Ver. Apr. 11, '30.

##### 3. Roadbed (Grading Construction Work)

Senkkastengründung beim Bau der Berliner Vorortbahn von Junfernheide nach Gartenfeld.\* (Caisson Foundation on Constructing the Berlin Suburban Railway from Junfernheide to Gartenfeld.) Kuhnke. Z. d. Bauver. Jan. 8, '30.

##### 4. Track

Why Neglect the Section Forces.\* Ry. Eng. & Main. Mar., '30.

Boston & Maine Ballasts 3 000 Ft. of Track a Day.\* Ry. Eng. & Main. Mar., '30.

Crawler Cranes Prove Versatile in Maintenance Work.\* Ry. Eng. & Main. Mar., '30.

Curing Soft Spots in Track by New Method.\* Ry. Eng. & Main. Apr., '30.

Lehigh Valley Lays 5 Miles of 66-Ft. Rails.\* Ry. Eng. & Main. May, '30.

What is the Economic Weight of Rail.\* Ry. Age May 24, '30.

Le Nouveau Matériel Métallique du Service de Banlieue de la Compagnie du Nord.\* (New Metal Rolling Stock for the Suburban Service of the Nord Company.) Laneron. Rev. Gen. May, '30.

##### 5. Signals and Safety Apparatus

On the Question of Signalling of Lines for Fast Traffic and in Main Stations. Daylight Signals. Automatic Block System.\* Antonio Gibert and Julio Nogues. Int. Ry. Cong. Assoc. Apr., '30.

Burlington Completes Centralized Control System on Nine Miles of Double Track.\* W. F. Zane. Ry. Age Apr. 5, '30.

Separate Signals for Pedestrian Traffic in San Francisco.\* Eng. N. R. Apr. 17, '30.

Grade Crossing Protection by Automatic Gates.\* West. City May, '30.

The Bingham & Garfield Installs Centralized Control System.\* R. J. Corfield. Ry. Age May 3, '30.

New Jersey Central Installs Cab Signaling on Single Track, Without Permissive Wayside Signals.\* F. W. Bender. Ry. Age May 17, '30.

##### 6. Rolling Stock

On the Question of Locomotives of New Types; In Particular Turbine Locomotives and Internal Combustion Motor Locomotives.\* Nordmann. Int. Ry. Cong. Assoc. Jan., '30.

On the Question of Improvements in the Steam Locomotive.\* R. P. Wagner. Int. Ry. Cong. Assoc. Jan., '30.

On the Question of Economical Methods for Use in Particular Cases.\* O. A. Gaeremynck. Int. Ry. Cong. Assoc. Jan., '30.

Austrian 2-8-4 Locomotive of Unique Design.\* A. Giesl Gieslingen. Ry. Age Mar. 22, '30.

On the Question of Electric Locomotives for Main Line Traction.\* Wilhelm Wechmann. Int. Ry. Cong. Assoc. Apr., '30.

Electric Locomotive Built by Railroad.\* R. L. Kimball. Ry. Age. Apr. 19, '30.

Iceless Refrigerator and Heater Car.\* Ry. Age Apr. 19, '30.

Electric Switching and Transfer Locomotives.\* P. A. McGee. Ry. Age May 3, '30.

A 4-8-4 Type Demonstration Locomotive for Timken.\* Ry. Age May 24, '30.

An 800-Horsepower Oil-Electric Locomotive.\* A. R. Brown. Ry. Age June 14, '30.

Five Years' Developments in Locomotive Service.\* R. W. Anderson. Ry. Age June 14, '30.

Voitures Métalliques de la Compagnie de l'Est.\* (Metal Cars of the Compagnie de l'Est.) Duchatel and Forestier. Rev. Gen. Jan., '30.



Locomotive Articulée Systeme Golwé en Service sur le Chemin de Fer de la Côte d'Ivoire.\* (Golwe Type of Articulated Locomotive on the Ivory Coast Railway.) Rev. Gen. Jan., '30.  
Truck Transbordeur du Chemin de Fer de Somain à Anzin et à la Frontière Belge.\* (Transfer Truck for the Somain Railway at Anzin and at the Belgian Frontier.) Bacle. Rev. Gen. Feb., '30.

Réparation des Boudins Usés des Roues par Apport de Métal dans les Ateliers du Service Electrique des Chemins de Fer de l'Etat.\* (Repair of Worn Wheel Flanges by Applying Metal in the Electric Service Shops of the State Railways.) Dagory. Rev. Gen. Feb., '30.  
Les Nouvelles Voitures de la Banlieue de Berlin et Leur Construction en Série.\* (The New Berlin Suburban Cars and Their Construction in Series.) Rev. Gen. Mar., '30.  
L'Emploi du Travail à la Chaîne dans les Ateliers du Matériel Roulant de la Compagnie des Chemins de Fer de l'Est. (The Use of Continuous Methods in Rolling Stock Shops of the Est Railways.) Rev. Gen. Apr., '30.

Note sur l'Entretien des Voitures à Bogies des Trains Express et des Rames de Banlieue de la Compagnie d'Orléans.\* (Note on the Maintenance of Bogie Trucks for Express Trains and Suburban Cars of the Orleans Company.) Alexandre Grison. Rev. Gen. Apr., '30.

Locomotive Diesel-Pneumatique de 1 200 Chevaux des Chemins de Fer allemands.\* (1 200 h. p. Diesel-Pneumatic Locomotive of the German Railways.) Gen. Civ. May 24, '30.

Die Abhängigkeit des Reibungswertes von der Fahrgeschwindigkeit und die "Reibungsleistung" bei Lokomotiven.\* (The Relation of the Coefficient of Friction to the Traveling Speed and the "Frictional Power" in Locomotives.) Theodor Quirchmayer. Oest. Ing. Arch. Ver. Feb. 28, '30.

Die 1 200 PS-Diesel-Druckluftlokomotive der Deutschen Reichsbahn. (The 1 200 HP Diesel Compressed Air Locomotive for the Deutschen Reichsbahn.) Witte and R. P. Wagner. Ver. deu. Ing. Mar. 8, '30.

Diesellokomotive mit Druckluftübertragung.\* (Diesel Locomotive with Compressed Air Transmission.) J. Geiger. Ver. deu. Ing. Mar. 22, '30.

Eine neue Hochdrucklokomotive der Deutschen Reichsbahn, Bauart Schwartzkopff-Löffler.\* (A New High-Pressure Locomotive of the German State Railroad, Schwartzkopff-Loeffler Design.) Fuchs. Oest. Ing. Arch. Ver. Mar. 28, '30.

## 7. Uses of Electricity

Reading Installs Electric Traction.\* G. I. Wright. Ry. Age Mar. 29, '30.

Novel Method Is Used in Laying Submarine Cable Ducts.\* Ry. Age May 3, '30.

Catenary System for the Lackawanna Electrification.\* Ry. Age June 14, '30.

Locomotives à Crémaillère et à Adhérence du Chemin de Fer Electrique Viège-Zermatt (Suisse).\* (Rack and Adhesion Locomotives for the Viège-Zermatt Electric Railway, Switzerland.) Paul Altorfer. Gen. Civ. Feb. 8, '30.

Dispositifs de Commande Individuelle des Essieux Moteurs des Locomotives Electriques.\* (Individual Control Devices for the Axle Motors of Electric Engines.) Rev. Gen. Mar., '30.

L'Eclairage Electrique du Matériel Roulant des Chemins de Fer.\* (Electric Lighting in Rolling Stock.) Gen. Civ. May 3, '30.

Die Versuche mit der Turbinenlokomotive von Krupp-Zoelly.\* (Experiments with Krupp-Zoelly Turbine Locomotives.) H. Nordmann. Ver. deu. Ing. Feb. 8, '30.

## 8. Stations, Terminals, Engine Houses, Shops

On the Question of the Methods to be Used in Marshalling Yards to Control the Speed of Vehicles Being Shunted and to Ensure They Travel on to the Lines in the Various Groups of Sidings.\* Gottschalk. Int. Ry. Cong. Assoc. Jan., '30.

On the Question of Recent Improvements in Permanent Way Tools and in the Scientific Organization of Maintenance Work.\* D. Mendizabal. Int. Ry. Cong. Assoc. Jan., '30.

Keeping Pace With Progress in B. & B. Equipment.\* Ry. Eng. & Main. Mar., '30.

On the Question of Locomotives of New Types; In Particular Turbine Locomotives and

Internal Combustion Motor Locomotives.\* Paul Koller. Int. Ry. Cong. Assoc. Apr., '30.

Country's Largest Trainshed Expanded 60 Per Cent.\* Ry. Age Apr. 26, '30.

Design of Lackawanna's Reinforced-Concrete Freight Terminal Warehouse at Jersey City.\* M. Hirschthal. Eng. N. R. Mar. 27, '30.

Introducing Mass Production Methods in Building Concrete Slabs.\* Ry. Eng. & Main. Apr., '30.

'Round a Round House.\* Francis X. Milholland. Sci. Am. Apr., '30.

D. L. & W. Builds Large Terminal Warehouse.\* Ry. Age Apr. 5, '30.

What Railroads Are Doing with Tractors.\* Ry. Age Apr. 12, '30.

Flat-Slab Concrete Track Deck in St. Louis Union Station.\* W. F. Saunders, Jr. Eng. N. R. Apr. 17, '30.

Cutting a Train Shed to Fit New Cars.\* Ry. Eng. & Main. May, '30.

Fighting the Blizzards at the Chicago Union Station.\* C. E. Cox. (Abstract of paper read before Main. of Way Club of Chicago.) Ry. Eng. & Main. May, '30.

Reading Building Year's Biggest Storehouse.\* Ry. Age May 3, '30.

Chicago & Eastern Illinois Junks Old Power Fast. Ry. Age May 24, '30.

T. H. & B. Builds Fireless Enginehouse.\* Ry. Age June 7, '30.

L'Aggrandissement de la Gare de l'Est, à Paris.\* (Enlarging the East Station in Paris.) P. Calfas. Gen. Civ. Serial beginning May 10, '30.

## 9. Technical and Commercial Use

On the Question of Competition of Road Transport. Zeitschmann. Int. Ry. Cong. Assoc. Jan., '30.

Selling More Rides.\* John B. Walker. Ry. Age Pt. 2. Mar. 22, '30.

Rail-Motor Coach Co-ordination in Great Britain.\* Alfred W. Arthurton. Ry. Age Pt. 2, Mar. 22, '30.

Boston & Maine's Efficient Maintenance Plan.\* R. C. Boyden. Ry. Age Pt. 2. Mar. 22, '30.

Operating a Co-ordinated Rail-Motor Truck Service.\* Ry. Age Pt. 2, Apr. 26, '30.

## b. Special Railroads

### 2. Aerial Railroads (Funicular, Monorail)

Le Chemin de Fer Funiculaire de Montserrat à Bogota (Colombie).\* (The Montserrat Cable Railroad at Bogota, Colombia.) Louis Millot. Gen. Civ. Mar. 29, '30.



- Die Tragsellkurve der Seilschwebbahnen.\* (The Supporting Cable Curve for Cableways.) Franz Skrobacek. Oest. Ing. Arch. Ver. Serial beginning Apr. 25, '30.  
 Die Seilbahn Triest-Opicina zum Schieben von Tramzügen über eine Steilrampe.\* (The Trieste-Opicina Cable Railway to Boost Trains Over a Steep Ramp.) F. Hunziker. Schw. Bauz. Apr. 12, '30.  
**3. Narrow Gauge. Light Railways**  
 Kleinbahnverlegung im Moor.\* (Shifting Narrow-Gauge Track on a Moor.) Garbe. Z. d. Bauver. Apr. 16, '30.

#### d. Street Railways, Elevated Railways, Subways

##### 1. General Articles

- City Railway in Abandoned Morris Canal Bed Promises Traffic Relief for Newark, N. J.\* Ralph Smillie. Eng. & Contr. Apr., '30.  
 Hochbauten der Elektrifizierten Stadt- und Vorortbahnen Reichsbahndirektion Berlin.\* (Structures of the Electrified Urban and Suburban State Railway Administration, Berlin.) Brademann. Zeit. Bau. Feb., '30.

##### 3. Roadbed (Grading Construction Work), Elevated Structure

- A Successful Reinforced Concrete Base for Street Railway Tracks.\* I. O. Mall. Conc. Apr., '30.

##### 5. Rolling Stock

- Neuerungen im Bau von Strassenbahn-Wagen.\* (Novelties in the Construction of Street Railway Cars.) J. Buchli. Schw. Bauz. May 10, '30.  
 Die vierachsigen Motorwagen der Städtischen Strassenbahn Zurich.\* (Four-Axle Motor Car for the Zurich Municipal Street Railway.) Schw. Bauz. May 24, '30.

#### f. Aeronautics

##### 1. General Articles

- The Development of Commercial Aviation.\* Erik H. Nelson. Mil. Engr. Mar.-Apr., '30.  
 Air Transport Insurance. J. Brooks B. Parker. Engrs. & Eng. Mar., '30.  
 The Military Value of Aviation.\* Leon Cammen. Mech. Eng. Mar., '30.  
 Building an Airport at St. Hubert, Que.\* Can. Engr. Apr. 15, '30.

##### 3. Aeroplanes

- The Autogiro.\* E. D. Rice. Engrs. & Eng. Feb., '30.  
 The Junkers Heavy-Oil Aero Engine. Eng. Apr. 11, '30.  
 The Successful Airplane Diesel.\* Sci. Am. May, '30.  
 Aufbau und Einzelheiten deutscher Leicht- und Sportflugzeuge.\* (Structure and Details of German Light and Sport Planes.) M. Schrenk. Ver. Deu. Ing. Mar. 15, '30.

##### 4. Aerodromes and Landing Fields

- The Seadrome on Ocean Airways.\* Edward R. Armstrong. Engrs. & Eng. Mar., '30.  
 Fresno Chandler Airport, California.\* Andrew M. Jensen. West. Constr. N. Mar. 25, '30.  
 Factors Governing the Location of Airports.\* Discussion: N. H. Angell, J. Ogden Marsh, Archer R. Norcross, John Nolen, S. N. Grimm, R. U. St. John, and John F. Partridge. Am. Soc. C. E. Apr., '30.  
 The St. Hubert Airship Mooring Tower.\* R. de B. Corriveau. Eng. Inst. Can. Apr., '30.  
 Permanent Improvement for Airports.\* E. K. Smith. (From paper read before Nat'l Aeronautical Chamber of Commerce.) Can. Engr. Apr. 1, '30.  
 Oakland's Municipal Airport. West. City May, '30.  
 Drainage in Airport Design.\* Harry E. Cotton. Public W. May, '30.  
 Long Bascule Doors in New Fort Worth Hangar.\* C. Milo Thelin. Eng. N. R. May 29, '30.  
 Strength and Arrangement of Pipe for Airport Drainage Systems.\* Harry E. Cotton. Eng. N. R. May 29, '30.

#### x. Miscellaneous

- Die Bayerische Zugspitzbahn.\* (The Bavarian Zugspitze Railroad.) Erich von Willmann. Z. d. Bauver. Mar. 19, '30.

### I. Municipal Water-Works. Agricultural Engineering. Irrigation.

#### a. General Articles

- A Description of the System of the Portland Water District.\* James W. Graham. N. E. W. W. Assoc. Dec., '29.  
 History and Organization of the Portland Water District. David E. Moulton. N. E. W. W. Dec., '29.  
 Hydro-Electric Plants in Connection with Municipal Water Supplies. P. L. Holland. Am. W. W. Assoc. Feb., '30.  
 Customer Accounting in the Detroit Department of Water Supply.\* Hal. F. Smith. Am. W. W. Assoc. Mar., '30.  
 Lake Waco Water Supply Project for Waco, Texas.\* O. H. Floyd and J. L. Lockridge. West. Constr. N. Mar. 10, '30.  
 Peak 24-Hour Water Consumptions in Several Cities in 1929.\* A. V. Ruggles. Am. W. W. Assoc. Apr., '30.  
 Wells, Iron Removal Plant and Diesel Pumping Equipment at Sioux Falls, S. D.\* F. G. Gordon. Am. W. W. Assoc. Apr., '30.  
 Portland Water Supply Assured by New Bull Run Dam.\* John M. Mann. West. City Apr., '30.  
 New K. C. S. Line Completes Ownership to Gulf Ports.\* Ry. Age Apr. 19, '30.  
 The Development of the Middletown, N. Y., Water Supply. J. A. Korschen. Am. W. W. Assoc. May, '30.  
 Elements of Efficiency in Water Works Operation. Adolph Kanneberg. Am. W. W. Assoc. May, '30.  
 Report on Windsor Water Works System. Ross L. Dobbin. Can. Engr. May 27, '30.  
 Die Verwertung städtischer Abwässer zum Zwecke der Landeskultur.\* (The Use of City Sewage in Agriculture.) F. Langbein. Gesund. Ing. May 24, '30.

## b. Hydrology, Water Resources

- Frequency and Intensity of Excessive Rainfalls at Boston, Massachusetts.\* Charles W. Sherman. Am. Soc. C. E. Apr., '30.
- Wells as a Source of Municipal Water Supply. Wynkoop Kiersted, Jr. Am. W. W. Assoc. Apr., '30.
- Water Supply From Rainfall on Valley Floors.\* Discussion: Charles H. Lee. Am. Soc. C. E. Apr., '30.
- Evaporation As a Function of Insolation.\* Burt Richardson. Am. Soc. C. E. May, '30.
- Problems of a Water-Shed Patrolman. S. F. Glass. Am. W. W. Assoc. May, '30.
- Sanitary Specifications and Construction for Water Wells. Harry F. Ferguson and Clarence W. Klassen. W. W. & Sewer. May, '30.
- Water Supply From Rainfall on Valley Floors.\* Discussion: A. L. Sonderegger. Am. Soc. C. E. May, '30.
- Rainfall Characteristics and Their Relation to Soils and Run-Off.\* Discussion: George S. Bliss, Brehon B. Somervell, Jesse W. Shuman, and Clinton L. Bogert. Am. Soc. C. E. May, '30.
- Der Beharrungszustand des Grundwassers beim Versuchsbrunnenbetrieb.\* (The Ground Water Regime on Test-Well Operation.) G. J. Lehr. Gesund. Ing. Apr. 5, '30.
- Grundwassernachweis für die Wasserversorgung des Nordseebades Wyk auf Föhr.\* (Detecting Ground Water for the Water Supply of the Wyk North Sea Bath on the Föhr.) Scheffel. Gas und Wasser. Apr. 19, '30.
- Die verschiedenen Stadien der Grundwasserbildung.\* (The Different Stages of Ground-Water Formation.) Chr. Mezger. Gesund. Ing. May 3, '30.

## c. Dams and Reservoirs

- The Silvan Dam.\* Comwlth. Engr. Feb., '30.
- Safety in Dam Construction.\* Allen Hazen. (From paper read before World Eng. Cong.) Public W. Mar., '30.
- Gravity Extension Division, Minidoka Project, Idaho.\* E. B. Darlington. West. Constr. N. Mar. 25, '30.
- Essential Facts Concerning the Failure of the St. Francis Dam.\* Discussion: B. F. Jakobsen, M. H. Gerry, Jr., F. B. Marsh, and F. C. Finkle. M. Am. Soc. C. E. Apr., '30.
- High Dams.\* A Symposium. Discussion: B. F. Jakobsen, Allen Hazen, and H. de B. Parsons. Am. Soc. C. E. Apr., '30.
- Earthquake Resistance Provided in Design for Gravity Dam. Eng. N. R. Apr. 10, '30.
- Silting and Life of Southwestern Reservoirs. R. G. Hemphill. Am. Soc. C. E. May, '30.
- Essential Facts Concerning the Failure of the St. Francis Dam. (Report of Comm. of Board of Direction.) Discussion: A. Floris, E. L. Grunsky, and S. B. Morris. Am. Soc. C. E. May, '30.
- High Dams. A Symposium. Discussion: P. Wilhelm Werner, C. A. P. Turner, F. W. Hanna, H. F. Dunham, Lars R. Jorgensen, William P. Creager, and L. F. Harza. Am. Soc. C. E. May, '30.
- Laminated Arch Dams with Forked Abutments.\* Lars R. Jorgensen, William Cain, B. F. Jakobsen, P. Wilhelm Werner, and H. B. Muckleston. Am. Soc. C. E. May, '30.
- 40-Year-Old Concrete in Crystal Springs Dam Still Watertight.\* F. R. McMillan and M. B. Lagaard. Eng. N. R. May 8, '30.
- Water-Works Intakes of the Middle West.\* Charles B. Burdick. Eng. N. R. May 22, '30.
- Hydraulic-Fill Dam of Fine Volcanic Ash Falls Disastrously.\* Eng. N. R. May 22, '30.
- Le Barrage Don Martin (Mexico), en Béton, à Contreforts.\* (The Don Martin (Mexico) Buttressed Concrete Dam.) Fred A. Noetzi. Gen. Civ. Feb. 22, '30.
- Der Bau der Dnjepr-Staumauer in Sudrussland.\* (Construction of the Dnieper Dam in Southern Russia.) Vogeler. Serial beginning Mar. 5, '30.
- Entwurf und Wirtschaftlichkeit von Staumauern aus Beton und Eisenbeton.\* (Design and Economy of Dams of Concrete and Reinforced Concrete.) E. Probst and F. Tölke. Ver. deu. Ing. Serial beginning Mar. 29, '30.
- Talsperre Kriebstein in Sachsen.\* (Kriebstein Dam in Saxony.) Z. d. Bauver. Apr. 23, '30.
- Die Stony Gorge-Talsperre in Kalifornien.\* (The Stony Gorge Dam in California.) Eger. Z. d. Bauver. Apr. 30, '30.
- Die Don Martin Staumauer in Mexiko.\* (Don Martin Dam in Mexico.) Schw. Bauz. May 17, '30.

## d. Analysis and Purification of Water

- Some Uses of Aeration in Water Purification.\* Malcolm Pirnie. N. E. W. W. Assoc. Dec., '29.
- Automatic Chlorination at Concord, N. H. Percy R. Sanders. N. E. W. W. Assoc. Dec., '29.
- Color Reduction in Storage Reservoirs.\* Caleb Mills Saville. N. E. W. W. Assoc. Dec., '29.
- Reconstruction of the Woodlawn Pumping Station. H. F. Huy. N. E. W. W. Dec., '29.
- Watching the Weather in Safeguarding Public Water Supplies. Arthur E. Gorman. N. E. W. W. Dec., '29.
- A New Mechanical Sand Filtration Plant in Colorado. Chester A. Truman. Am. W. W. Assoc. Feb., '30.
- Contamination of Water Systems by Consumers Water Uses. S. B. Morris. Am. W. W. Assoc. Feb., '30.
- Industries and Water Supplies. Wellington Donaldson. Am. W. W. Assoc. Feb., '30.
- Varying Wash Water Rates With Changes of Water Temperature.\* W. C. Lawrence. Am. W. W. Assoc. Feb., '30.
- Water Softening at Hinsdale, Illinois. H. Menold. Am. W. W. Assoc. Feb., '30.
- Chlorinated Copperas in the Treatment of Soft, Highly Colored Water. A. Clinton Decker. Am. W. W. Assoc. Feb., '30.
- Taking Hardness Out of Water. R. E. McDonnell. Am. W. W. Assoc. Feb., '30.
- Details of Filter Plant Operation. Arthur J. Hall. Am. W. W. Assoc. Feb., '30.
- Report of Committee No. 1 on Standard Methods of Water Analysis. Am. W. W. Assoc. Feb., '30.
- A Peculiar Lactose-Fermenting Anaerobe From Filtered and Chlorinated Water.\* Robb Spalding Spray and Paul C. Laux. Am. W. W. Assoc. Feb., '30.

- Locomotive Boiler Feed Water Supplies and Their Treatment.\* A. V. Paterson. Comwlth. Engr. Feb., '30.
- Correcting Corrosive Water at Institution. G. M. Ridenour. (From paper of N. J. Agric. Exp. Station.) Public W. Mar., '30.
- Experiences of a Filter Plant Trouble Shooter. L. E. Wickersham. (Paper read before Penn. W. W. Operators' Assoc.) W. W. & Sewer. Mar., '30.
- A Recent Development in Lime Water Softening. Charles P. Hoover. (Paper read before Kansas W. W. Assoc.) W. W. & Sewer. Mar., '30.
- Mechanical Distribution of Larvicide for Mosquito Control.\* H. A. Johnson. Public W. Mar., '30.
- Filter Bed Clogging.\* W. W. & Sewer. Mar., '30.
- A Simple Color Test of Flocc in Treating Colored Water.\* George G. Nasmith. Am. W. W. Assoc. Mar., '30.
- Mosquito Control of Water Supply Reservoirs. Ernest W. Constable. Am. W. W. Assoc. Mar., '30.
- Scientific Control From the Operator's Viewpoint.\* R. G. Yaxley. Am. W. W. Assoc. Mar., '30.
- Some Unusual Features in the Design of the New Water Filtration Plant. Frederick A. Dallyn. Am. W. W. Assoc. Mar., '30.
- Railway Water Treatment Progress. R. C. Bardwell. Am. W. W. Assoc. Mar., '30.
- Engineering Studies of Municipal Zeolite Water Softening.\* Harry N. Jenks. Am. W. W. Assoc. Mar., '30.
- Recreational Use of Reservoirs. Carl Wilson. Am. W. W. Assoc. Mar., '30.
- Sanitary Defects of Ground Water Supplies. R. E. Lawrence. (Paper read before Kansas W. W. Assoc.) W. W. & Sewer. Mar., '30.
- Washing Rates for Rapid Sand Filter Beds.\* W. W. & Sewer. Apr., '30.
- Sanitary Engineering in the Public Health Service. Arthur P. Miller. (Paper read before West Virginia Conference on Water Purification.) W. W. & Sewer. Apr., '30.
- Manganese Dioxide in the Aqueduct of the Catskill Water Supply.\* Frank E. Hale. Am. W. W. Assoc. Apr., '30.
- The Relation of Direct Bact. Coli and Bact. Aerogenes Counts to Sources of Pollution.\* Fred O. Tonnev and Ralph E. Noble. Am. W. W. Assoc. Apr., '30.
- Waukegan Filtration and Pumping Plant. Henry A. Allen. Am. W. W. Assoc. Apr., '30.
- Safeguarding Wisconsin Water Supplies.\* L. F. Warrick and O. J. Muegge. Am. W. W. Assoc. Apr., '30.
- State Sanitation in California.\* Leon B. Reynolds. Am. W. W. Assoc. Apr., '30.
- Treat Two and One-Half Million Gallons Per Day.\* R. E. Coughlan. Ry. Eng. & Main. May, '30.
- Natural and Artificial Purification of the Sangamon River.\* Charles H. Spaulding. Am. W. W. Assoc. May, '30.
- Activated Char As a Deodorant in Water Purification. George R. Spalding. Am. W. W. Assoc. May, '30.
- The Menasha, Wisconsin, Water Purification Plant. John K. Kuester. Am. W. W. Assoc. May, '30.
- The Correlation of Sulphite Reducing and Colon Bacteria in Water.\* I. M. Lewis, Thomas C. Green, and Viola Hamilton. Am. W. W. Assoc. May, '30.
- Coagulation.\* W. W. & Sewer. May, '30.
- Notes on the Determination of Nitrates.\* G. W. Burke, Max Levine, and G. H. Nelson. Am. W. W. Assoc. May, '30.
- Water Supply and Sewerage of Large Japanese Cities.\* Harold E. Babbitt. Eng. N. R. May 1, '30.
- Progress and Trends in Water Softening. Charles P. Hoover. Eng. N. R. May 22, '30.
- Developments in Water-Purification Practice.\* Paul Hansen. Eng. N. R. May 22, '30.
- Pollution of Canadian Inland Waters. (From Report of Public Health Eng. Div., Dept. Pensions & Health.) Can. Engr. May 27, '30.
- Regel-einrichtung bei Schnellfilteranlagen.\* (Control Adjustment in Rapid Filters.) Karl Henning. Gas und Wasser. Feb. 1, '30.
- Beispiele für die Filtrierung von Talsperrenwasser.\* (Examples of the Filtration of Impounded Water.) Ziegler. Gesund. Ing. Serial beginning Feb. 8, '30.
- Chlorkupferung und Chlorsilberung in der Wasser- und Abwasserbehandlung.\* (Copper Chloride and Silver Chloride in the Treatment of Water and Sewage.) G. Ornstein and R. Kroke. Gesund. Ing. Mar. 8, '30.
- Die Verwendung von Torf und Holzmehl bei der Reinigung von Farberelabwasser.\* (Use of Peat and Wood Meal in the Purification of Dye-Works Waste Water.) Walter Ottmeyer. Gesund. Ing. Mar. 22, '30.
- Betrachtungen über die Entsäuerung des Wassers an Hand graphischer Darstellungen.\* (Observations on the De-Acidification of Water, Using Graphic Methods.) Paul Martiny. Gesund. Ing. Mar. 29, '30.
- Beiträge zur Trinkwasserreinigung durch die langsame Sandfiltration.\* (Contributions on the Purification of Potable Water by Slow-Sand Filtration.) Hans Dornedden. Gas und Wasser. Serial beginning Mar. 29, '30.
- Eine neue Methode zur hygienischen Beurteilung von Oberflächenwasser.\* (A New Method for Sanitary Testing of Surface Water.) O. Acklin. Gas und Wasser. May 3, '30.
- Ueber eine elektrochemische Sauerstoffbestimmung.\* (An Electrochemical Oxygen Determination.) L. W. Haase. Gesund. Ing. May 10, '30.

#### c. Distribution of Water

- Changes in Power for Pumping at Newport, R. I. Harold Watson. N. E. W. W. Assoc. Dec., '29.
- Testing Large Meters.\* R. E. Ferguson. N. E. W. W. Dec., '29.
- Laying of Water Mains.\* Walter A. Peirce. Am. W. W. Assoc. Feb., '30.
- The Two-Main System of Water Distribution.\* J. B. Eddy. Am. W. W. Assoc. Feb., '30.
- Pipe Tunnels Under Railroad Tracks.\* Lawrence G. Lenhardt. Am. W. W. Assoc. Mar., '30.
- Cement Lining Galvanized Pipe in West Palm Beach. Ralph W. Reynolds. Am. W. W. Assoc. Mar., '30.

- Selection of Pumping Station Equipment.\* A. P. Pigman. Am. W. W. Assoc. Mar., '30.  
 Trunk Main Surveys and Distribution Studies.\* H. E. Beckwith. (Paper read before Penn. W. W. Operators Assoc.) W. W. & Sewer. Mar., '30.  
 Denver Installs New Water Conduit. Jos. C. Coyle. W. W. & Sewer. Mar., '30.  
 Sixty Inch Conduit Line Nearing Completion for City of Denver.\* D. D. Gross. West. City Mar., '30.  
 Deep Wells and Pumps For Drainage and Supplemental Irrigation Water in Idaho.\* E. H. Neal. (Paper read before Land Reclamation Sec., Am. Soc. Agric. Engrs.) West. Constr. N. Mar. 10, '30.  
 Automatic Pump Station Control. J. W. Robinson. Am. W. W. Assoc. Apr., '30.  
 Centrifugally Spun Reinforced Concrete Pipe at Tacoma, Washington. W. A. Kunigk. Am. W. W. Assoc. Apr., '30.  
 Relation of the Interior Condition of Water Mains to the Coefficient of Roughness.\* A. T. Clark. Am. W. W. Assoc. Apr., '30.  
 The Design of Reinforced Concrete Culverts. Alfred McKeel. Public W. Apr., '30.  
 Report of the Committee of the Irrigation Division on "A National Reclamation Policy". Discussion: F. N. Cronholm, R. I. Meeker, and E. B. Debler. Am. Soc. C. E. Apr., '30.  
 Circulating Water Culverts for the Portishead Generating Station.\* Eng. Apr. 4, '30.  
 Conduit No. 13 Completed for Denver Water Works.\* Joseph C. Coyle. West. Constr. N. Apr. 25, '30.  
 Pumping Plants for West Stanislaus Irrigation District.\* Paul C. Butte. West. Constr. N. Apr. 25, '30.  
 A Summarization of Experience and Current Practice in Certain Phases of Steel Plate Pipe Line Construction. Am. W. W. Assoc. May, '30.  
 Report of Sectional Committee on Specifications for Cast Iron Pipe. Am. W. W. Assoc. May, '30.  
 Experiments to Determine Rate of Evaporation from Saturated Soils and River-Bed Sands.\* Ivan E. Houk and Ralph L. Parshall. Am. Soc. C. E. May, '30.  
 Constructing a Pipe Line in Corrosive Soil.\* J. B. Lippincott and K. Q. Volk. Eng. N. R. May 22, '30.  
 Distribution System Practices of a Large Group of Water Companies.\* Georg W. Biggs. Eng. N. R. May 22, '30.  
 Submerged Water Main of 8-In. Reinforced-Rubber Pipe.\* Walter C. Munroe. Eng. N. R. May 22, '30.  
 Meter Installation and Operation Practice.\* H. P. Matte. Eng. N. R. May 22, '30.  
 Selective Metering Considered Economical in St. Louis.\* Eng. N. R. May 22, '30.  
 Automatic Water Pumping Stations.\* Leon Small. (Paper read before Maryland-Delaware Water and Sewerage Assoc.) Can. Engr. June 3, '30.  
 Studies in Pipe Culvert Durability and Performance.\* Searcy B. Slack. Eng. N. R. June 5, '30.  
 Investigation of Crushing Loads on Cast-Iron Pipe Under Rockfill.\* M. G. Spangler. Eng. N. R. June 5, '30.  
 Conservancy District on the Rio Grande.\* Lee Nofztger. Eng. N. R. June 12, '30.  
 Berechnung und Betriebskontrolle von Wasserversorgungsnetzen nach der Methode der äquivalenten Weiten.\* (Calculation and Control of Water Supply Systems According to the Equivalent Diameters.) Victor Mann. Gesund. Ing. Feb. 1, '30.  
 Ueber die Schwierigkeiten der Wasserversorgung der Stadt Breslau im Winter 1928/29.\* (On the Difficulties in Supplying Water to Breslau during the Winter of 1928-29.) Gas und Wasser. Mar. 15, '30.  
 Dimensionierung von Hausanschlussleitungen.\* (Dimensioning House Connection Pipes.) Hans Holler. Gas und Wasser. Apr. 26, '30.

#### 1. Drainage of Land

- Pumping Plant for Drainage and Irrigation at Mypolonga, South Australia. Comwlth. Engr. Mar., '30.  
 Land Reclamation By Silting.\* Charles F. A. Mann. Sci. Am. Apr., '30.  
 Die künstliche Entwässerung der Rheinniederung Bislich-Emmerich.\* (Artificial Drainage of the Rhine Lowlands, Bislich-Emmerich.) Stracke and Beermann. Zeit. Bau. Mar., '30.

#### x. Miscellaneous

- Mosquito Abatement.\* J. Lyell Clark. West. Soc. Engrs. Feb., '30.

### J. Sewerage. Sewage and Refuse Disposal

#### a. Sewers and Drains

- New Pumping Station Handles City's Storm Water.\* Chalmers Bower. West. City Apr., '30.  
 Run-Off as Affecting the Flow in Sewers.\* Leslie Roseveare. Inst. Mun. & Co. Engrs. Apr. 29, '30.  
 Rainfall and Run-Off. (From Report of Ministry of Health Departmental Comm.) Inst. Mun. & Co. Eng. Apr. 29, '30.  
 New Trunk Sewer System for Owensboro, Ky.\* George O. Consoer. Eng. N. R. May 8, '30.  
 Sand-Clogged Outfall Sewer Cleaned and Joints Caulked.\* L. R. Walker. Eng. N. R. May 29, '30.  
 Backwater Gates Control Flow in Connors Creek Sewer, Detroit.\* Milton F. Wagnitz. Eng. N. R. May 29, '30.  
 Stormwater Inlet Grating, Borough of Manhattan, New York.\* O. Hufeland. Eng. N. R. June 5, '30.

#### b. Sewage Disposal, Purification

- Collection and Disposal of Wastes in Detroit.\* John W. Reid. Public W. Mar., '30.  
 Experimental Sewage Treatment Work in Europe.\* G. P. Edwards. (From Sewage Works Journal.) W. W. & Sewer. Mar., '30.

- Recent Development in Sewage Disposal in the East. R. F. Goudey. (From Calif. Sewage Works Assoc. *Journal*.) West. Constr. N. Serial beginning Mar. 10, '30.
- Friction of Sewage Sludge in Pipes.\* (Progress Report of Comm. of the Sanitary Engineering Division.) Discussion: William Clifford. Am. Soc. C. E. Apr., '30.
- Experimental Activated Sludge Plant at Philadelphia.\* Michael J. Blew. Public W. Apr., '30.
- Pulverizing of Sewage Screenings at Baltimore, Maryland. Discussion: C. E. Keefer. Am. Soc. C. E. May, '30.
- Odors from Sewage Disposal. W. W. & Sewer. May, '30.
- Recent Trends and Comparative Costs of Sewage Disposal.\* Francis H. Bulot. W. W. & Sewer. May, '30.
- Garbage Incineration in a City of 30 000.\* T. A. Livesley. West. City May, '30.
- Water Supply and Sewerage of Large Japanese Cities.\* Harold E. Babbitt. Eng. N. R. May 1, '30.
- Glass-Covered Drying Beds for Sludge. Floyd G. Browne and F. W. Jones. (Paper read before N. J. Sewage Works Assoc.) Can. Engr. June 10, '30.
- Richtlinien für die Beurteilung und Zulassung von Hausklärgruben und Grundstückskläranlagen.\* (Directions for the Examination and Acceptance of Domestic Septic Tanks Clarification Plants for Estates.) Gesund. Ing. Feb. 15, '30.
- Zur Frage der Beseitigung der Phenole aus den Abwässern. (On the Question of the Removal of Phenols from Waste Waters.) L. M. Horowitz-Wlassowa. Gas und Wasser. Mar. 22, '30.
- Schlammbehandlung auf der Kläranlage Gelsenkirchen-Nord.\* (Sludge Treatment at the Gelsenkirchen-Nord Clarification Plant.) H. Blunk. Gesund. Ing. Apr. 19, '30.
- Flachbeckenkläranlagen mit Schlammkratzern.\* (Flat-Bottom Clarification Plants with Sludge Scrapers.) Max Prüss. Gesund. Ing. May 3, '30.
- Versuche zur Reinigung von Zellstoffabwasser.\* (Tests for Purifying Cellulose Waste Waters.) R. Brüche. Gesund. Ing. May 10, '30.
- Die Bedeutung des Unterdruckfördersystems (Absaugung) für die Kanalentwässerung und die Sinkkastenreinigung.\* (The Importance of Vacuum System (Suction) in the Removal of Sludge from Sewers and in Cleaning Catch Basins.) A. Ringel. Gesund. Ing. May 17, '30.

#### c. Refuse Disposal

- Construction of Incinerator at Sarnia, Ont.\* W. B. Beatty. Can. Engr. Apr. 8, '30.
- Probleme bei der Organisation einer Müllabfuhr.\* (Problems in the Organization of Refuse Removal.) Erhard. Gesund. Ing. May 31, '30.

### K. Heat Engines

#### c. Gas and Oil Engines

- Diesel Engines for Water Works.\* R. L. Baldwin. Am. W. W. Assoc. Feb., '30.
- Der neue Saurer Fahrzeug-Dieselmotor.\* (The New Saurer Automotive Diesel Engine.) Ad. Brüderlin. Schw. Bauz. Serial beginning Mar. 22, '30.
- Ergebnisse von Versuchen an den Dieselmotoren des Spitzenkraftwerkes Hennigsdorf.\* (Results of Tests on the Diesel Engines of the Hennigsdorf Peak Power Plant.) W. Laudahn. Ver. deu. Ing. May 3, '30.

### L. Electricity

#### a. Production of Electricity

##### 2. Magneto and Dynamo-Electric Machines

- Elektrizitätswerke Frankfurt am Main.\* (Electricity Plants in Frankfurt-am-Main.) Z. d. Bauver. Apr. 2, '30.

#### b. Distribution and Transmission of Electricity

##### 1. Power Plants

- Moving a Substation Underground.\* F. B. Freeman. Sci. Am. June, '30.
- Electrical Equipment at Mersey Mill.\* A. D. Ross. Can. Engr. June 3, '30.

##### 2. Long Distance Transmission of Energy

- The Central Scotland Electricity Scheme.\* Engr. May 2, '30.
- Les Câbles Souterrains à Haute Tension.\* (Underground Cables of High Voltage.) M. J. Delon. Soc. Ing. Civ. Fr. May-June, '29.

##### 5. Transformers and Converters

- Load Ratio Control.\* C. E. Sisson. Eng. Inst. Can. May, '30.

#### d. Mechanical Uses of Electricity

##### 1. Electric Motors

- La Central Thermo-Electrique de l'Usine Wanda, à Champigny-sur-Marne, près Paris.\* (The Thermo-Electric Central Station of the Wanda Plant, at Champigny-sur-Marne, near Paris.) Louis Schwob. Gen. Civ. Jan. 25, '30.

##### 3. Welding

- Electrically Welded Structures Under Dynamic Stress.\* Morris Stone and J. G. Ritter. A. I. E. E. Mar., '30.

#### e. Electrochemistry and Electrometallurgy

- Fours Electriques pour la Métallurgie de l'Acier.\* (Electric Furnaces for Steel Metallurgy.) Gen. Civ. Apr. 12, '30.

#### f. Signals and Communication

- Submarine Telegraphy in the Post War Decade. L. S. Coggeshall. A. I. E. E. Mar., '30.
- Recent Developments in Toll Telephone Service.\* W. H. Harrison. A. I. E. E. Mar., '30.



- Telephone Interference from A.-C. Generators Feeding Directly on Line with Neutral Grounded. J. J. Smith. A. I. E. E. Mar., '30.  
 The Development of Radio in Canada.\* A. N. Fraser. Eng. Inst. Can. Apr., '30.  
 Transoceanic Telephone Service Short-Wave Equipment.\* A. A. Oswald. A. I. E. E. Apr., '30.  
 Radio Communication as an Aid to Aviation in Canada.\* W. Arthur Steel. Eng. Inst. Can. Mar., '30.  
 Bank of 36 Conduit Pipes 620 Ft. Long Laid Across Harlem River as One Unit.\* Eng. N. R. May 8, '30.

## M. Architecture

### a. Educational, Government and Scientific Buildings

- Heinrich-Hertz-Institut für Schwingungsforschung.\* (Heinrich Hertz Institute for the Investigation of Vibration.) Weissgerber. Z. d. Bauver. Jan. 8, '30.  
 Die Neubauten der Tierärztlichen Hochschule Hannover. (New Buildings of the Hannover Veterinary College.) F. Kassbaum. Z. d. Bauver. Jan. 8, '30.  
 Heiz- und Kraftwerk der Technischen Hochschule Aachen.\* (Heating and Power Plant of the Aachen Technical High School.) P. K. Knoch. Z. d. Bauver. Jan. 8, '30.  
 Musiklandheim Frankfurt an der Oder.\* (The Music School in Frankfurt-an-der-Oder.) Z. d. Bauver. Feb. 26, '30.  
 Das Sempersche Stadthaus in Winterthur und seine geplante Erweiterung.\* (The Semper City Hall in Winterthur and Its Contemplated Enlargement.) Peter Meyer. Schw. Bauz. Mar. 29, '30.  
 Erweiterung des Vereinshauses "Zur Kaufleuten" in Zürich.\* (Enlarging the "Zur Kaufleuten" Association Building.) Schw. Bauz. Mar. 8, '30.  
 Das Hallenschwimmbad in Reutlingen.\* (The Indoor Swimming Pool in Reutlingen.) M. Nowotny. Gesund. Ing. Mar. 15, '30.  
 Erweiterungsbau des Kollegiengebäudes der Albertus-Universität in Königsberg i. Pr.\* (Enlarging the College Building of Albertus University in Königsberg i. Pr.) Robert Liebenthal. Z. d. Bauver. Apr. 23, '30.  
 Der Neubau des Studiengabäudes vom Deutschen Museum in München.\* (The New Construction of the Study Hall for the German Museum in Munich.) Karl Bäsler. Ver. deu. Ing. May 3, '30.  
 Stabshaus Breslau.\* (The Breslau Staff House.) Z. d. Bauver. May 7, '30.

### b. Business and Commercial Buildings

- Manhattan's Mightiest "Minaret".\* F. D. McHugh. Sci. Am. Apr., '30.  
 Head Office Building for Canada Life.\* W. R. Nelson. Can. Engr. June 10, '30.  
 Das Stuttgarter Tagblatt-Turmhaus.\* (The Stuttgart Tagblatt Building.) Fuchs-Roll. Oest. Ing. Arch. Ver. Mar. 28, '30.  
 Verwaltungsgebäude der "Volksstimme" in Frankfurt a. Main.\* (Office Building of the "Volksstimme" in Frankfurt a. Main.) Z. d. Bauver. Apr. 30, '30.

### c. Residences, Hotels

- L'Oeuvre de l'Institut pour les Maisons Populaires de Milan.\* (The Work of the Milan Institute for Workmen's Houses.) Giulio Tiani. Gen. Civ. Mar. 1, '30.  
 Die Dammerstock-Siedlung in Karlsruhe.\* (The Dammerstock Community in Karlsruhe.) Schmitt. Gesund. Ing. Feb. 8, '30.  
 Verbandspräsidium des Siedlungsverbandes Ruhrkohlenbezirk in Essen.\* (The Office of the President of the "Community Dwelling Association" of the Ruhr Coal District in Essen.) Z. d. Bauver. Feb. 26, '30.  
 Siedlung "Sonnenhalde" in Zürich-Leimbach.\* ("Sonnenhalde" Dwellings in Zurich-Leimbach.) Schw. Bauz. May 31, '30.

### d. Storage Buildings

- Government Elevator at Prescott, Ont.\* E. Smith. Can. Engr. Apr. 22, '30.  
 Design and Construction of a 125 000-Ton Rock-Storage Bin.\* Eng. N. R. June 12, '30.

### e. Hospitals and Asylums

- Umbau der Kurgebäude des Staatlichen Nordseebades Nordnerney.\* (Reconstruction of the Bath Houses of the Norderney Municipal North Sea Baths.) Hauch. Z. d. Bauver. Mar. 19, '30.

### g. Other Buildings

- Designing for Convenience and Efficiency in the Motor Coach Garage. Albert Kahn. Ry. Age Pt. 2, Apr. 26, '30.  
 Die Anordnung der Sitzreihen in Zuschauerräumen.\* (The Seating Arrangement in Auditoriums.) Johannes Waldmann. Oest. Ing. Arch. Ver. Jan. 31, '30.  
 Grossgarage "Marbeuf" Autos Citroen, Paris.\* ("Marbeuf" Large Garage for Autos Citroen, Paris.) Schw. Bauz. Feb. 22, '30.  
 Marienkirche in Mülheim an der Ruhr.\* (The Church of the Holy Virgin at Muelheim on the Ruhr.) Emil Fahrenkamp. Z. d. Bauver. Mar. 5, '30.

### h. Roofs, Domes

- Adding Stories to a Steel-Frame Chicago Bank Building.\* Max Rosner. Eng. N. R. Mar. 27, '30.  
 Steel Design and Erection on a 900-Ft. Tower Building.\* O. F. Sieder. Eng. N. R. May 8, '30.  
 Steel and Iron Work in the Old Waldorf-Astoria Building.\* F. H. Frankland. Eng. N. R. May 15, '30.  
 Novel Combination Steel and Wood Arch Roof.\* Eng. N. R. June 5, '30.

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## x. Miscellaneous

- Winddruck auf Ingenieurbauten.\* (Wind Pressure on Structures.) Richard Katzmayer.  
Oest. Ing. Arch. Ver. Serial beginning May 23, '30.

## O. Administration. Legislation. Economics. Statistics

## a. General Legislation

- La Reglementation du Titre d'Ingenieur en France. Etat Actuel de la Question. (The Regulation of the Title of Engineer in France. Present Status of the Question.) Gen. Civ. May 24, '30.

## d. Administrative and Financial Management of Means of Communication

## 2. Routes and Roads

- The Financing of Highways. (From Report of Am. Road Bldrs. Assoc.) R. & S. Mar., '30.  
Relation Between Rail and Waterway Transportation. A Symposium. Discussion: Lewis C. Sorrell. Am. Soc. C. E. Apr., '30.  
Relation Between Rail and Waterway Transportation: A Symposium. Discussion: R. B. Kittredge, Henry A. Palmer, and J. Parker Snow. Am. Soc. C. E. May, '30.  
Organization and Authority of a Highway Materials Division.\* H. S. Mattimore. (Paper read before Highway Officials of North Atlantic States.) R. & S. May, '30.

## 5. Railroads and Street Railways

- On the Question of the Co-Operation of the Staff Towards Increased Efficiency and Its Participation in the Profits. Rafael Marin del Campo and Juan Canovas del Castillo. Int. Ry. Cong. Assoc. Jan., '30.  
On the Question of the Methods Followed in Training of Staff, Professional, Technical and Ordinary Working Grades.\* Bruno Schwarze. Int. Ry. Cong. Assoc. Apr., '30.  
Specifications—The Tap Root of New York Central Buying.\* Ry. Age Apr. 26, '30.  
Budgeting Improvements on the Kansas City Southern Railway. C. E. Johnston. (Abstract of paper read before R. R. Business Assoc.) Eng. N. R. May 15, '30.  
How the Illinois Central Does Its Buying.\* P. C. Mayer. Ry. Age June 7, '30.

## g. Engineering Education

- Die Ausbildung an den Bauingenieurabteilungen der deutschen Technischen Hochschulen.\* (Education and Structural Engineering Departments of German Technical High Schools.) O. Ammann. Ver. deu. Ing. May 3, '30.

## P. Geology

- Eine geotechnische Studie.\* (A Geotechnical Study.) Karl Backofen. Z. d. Bauver. May 7, '30.

## Q. Surveying and Geodesy

- Photographing Alaska from the Air.\* R. H. Sargent. Mil. Engr. Mar.-Apr., '30.  
Aerial Surveying as Applied to Engineering Problems.\* A. M. Narraway. Eng. Inst. Can., Mar., '30.  
Adjustment of Transit and Stadia Traverses.\* Discussion: Paul H. Underwood, F. H. Peters, and H. Parry. Am. Soc. C. E. Apr., '30.  
Good Maps Are a Sound Investment. Discussion: L. R. Lohr. Apr., '30.  
The Surveying and Mapping Activities of the Federal Government. Discussion: T. W. Norcross. Am. Soc. C. E. Apr., '30.  
The Engineer's Work in Surveying and Mapping.\* F. H. Peters. Eng. Inst. Can. Apr., '30.  
Aerial Photography Applied to Maps.\* F. H. Peters. Can. Engr. May 13, '30.

## S. City Planning

- Planning for Boston—1630-1930.\* Elisabeth M. Herlihy. City Plan. Jan., '30.  
City Planning in Poland.\* Wacław Wrzesien. City Plan. Jan., '30.  
The Division of Metropolitan Planning, Boston. Henry I. Harriman. City Plan. Jan., '30.  
Boston Metropolitan Planning.\* Arthur A. Shurtleff. City Plan. Jan., '30.  
Knoxville Begins to Carry Out Its New City Plan.\* Hal H. Hale. Eng. N. R. Apr. 17, '30.  
Town Planning in the Manchester Regional Area.\* D. T. Tansley. Inst. Mun. & Co. Engrs. Apr. 29, '30.  
City Planning—Some Perspectives. Carol Aronovici. West. City Mar., '30.  
The Denver City Plan.\* Walden E. Sweet. West. City May, '30.  
City Planning as Related to the Smaller Cities. E. A. Wood. Am. Soc. C. E. May, '30.  
Utilization of Gas from Turner Valley.\* Jean Billetjst. Can. Engr. Serial beginning May 6, '30.  
Gross-Siedlungen.\* (Large Dwellings.) Walter Gropius. Z. d. Bauver. Mar. 26, '30.  
Grundsätzliches zum Siedlungsbau.\* (Fundamentals of Community Dwelling Construction.) Fritz Block. Z. d. Bauver. Apr. 30, '30.

## T. Oil and Oil Engineering

- L'Exploitation Pétrolifère de Pechelbronn en Alsace.\* (Petroleum Mining at Pechelbronn, Alsace.) Gen. Civ. Apr. 5, '30.

## Engineering Societies Employment Service

The Engineering Societies Employment Service is under the joint management of the National Societies of Civil, Mining, Mechanical, and Electrical Engineers. A Chicago office is maintained in co-operation with the Western Society of Engineers, and a San Francisco office, in co-operation with the Engineers' Club of San Francisco and the California Section of the American Chemical Society. The Service is available only to the several memberships and is maintained by contributions from the Societies and their individual members who are directly benefited.

**Offices.**—Eastern Office, 31 West 39th Street, New York, N. Y., Walter V. Brown, Manager; Chicago Office, 205 West Wacker Drive, 1216 Engineering Building, Chicago, Ill., A. Krauser, Manager; and San Francisco Office, 57 Post Street, Room 715, San Francisco, Calif., Newton D. Cook, Manager.

**Men Available.**—Under this heading, brief announcements will be published without charge. These announcements will not be repeated, except on request received after an interval of one month. Notices for *Proceedings* should be addressed to Employment Service, 31 West 39th Street, New York, N. Y., and should be received prior to the first of the month.

**Opportunities.**—A Bulletin of engineering positions available is published weekly and may be obtained by members of the Societies concerned at a subscription rate of \$3 per quarter, or \$10 per annum, payable in advance. Positions which are not filled promptly as a result of publication in the Bulletin, may be announced herein.

**Placement Fees.**—The Service is operated on a co-operative basis, whereby those benefiting contribute in accordance with the following rates: One and one-half per cent. of the first year's salary for permanent positions. Temporary positions, six months or less, 3% of the total salary received, payable monthly.

**Replies to Announcements.**—Replies to announcements published herein, or in the Bulletin, should be addressed to the key number indicated in each case, with two two-cent stamps attached for re-forwarding, and forwarded to the Employment Service at the address given. Replies received by the Service after the positions to which they refer have been filled, will not be forwarded.

### MEN AVAILABLE

**CIVIL ENGINEER**, Assoc. M. Am. Soc. C. E.; age 55; widower, no children; experience, public works Boston, New York City, and elsewhere, consulting engineers, public departments; especially water-works valuations, design, supervision of inspection, tests of materials, equipment. Available after July 31, due to completion of work on Wanaque Water Supply Project, Northern New Jersey. Location preferred, vicinity, New York. A-5070.

**CONSTRUCTION ENGINEER OR SUPERINTENDENT**, M. Am. Soc. C. E. More than 30 years' specialized experience abroad, building railways, hydro-electric, reinforced concrete, wharves, and industrial type of buildings. West Indies, South America, France, Far East. Speaks Spanish. Can handle by administration or

supervise local contractors, making contracts, etc. Has just returned from South America. Will go anywhere. A-5380.

**CIVIL ENGINEER**, M. Am. Soc. C. E., wishes responsible position teaching mechanics, structures, or highways in non-sectarian institution; American; age 51; graduate of two universities with Ph. B., B. S., M. S., and C. E. Twenty years' technical and administrative engineering experience; five years teaching; experienced writer and speaker; qualified personally. Location, immaterial. B-5954.

**HYDRAULIC ENGINEER AND EXECUTIVE**, Assoc. M. Am. Soc. C. E.; graduate civil engineer; age 45; married; suburban Boston resident. Twenty years' experience in United States, of broad general character

largely along hydraulic lines, capable of handling work of magnitude from preliminary stages through construction. Immediately available. B-7904.

**LICENSED PROFESSIONAL ENGINEER.** Assoc. M. Am. Soc. C. E.; age 49; 25 years' experience in railway, highway, municipal, harbor, and industrial engineering, exploration, boundary and property surveying. Mostly in foreign countries. Speaks Danish and has working knowledge of Spanish. Available on short notice to take charge of work or for investigations and reports. B-8567.

**CIVIL ENGINEER.** M. Am. Soc. C. E., with 23 years' experience, design and construction of steel and reinforced concrete, bridges, buildings, etc., railroad and municipal works, is open for position as chief engineer, superintendent, or similar. B-9497.

**JUNIOR ENGINEER.** Jun. Am. Soc. C. E.; age 24; single. Construction and design of sewerage and highway work; topographical surveying, computing and drafting; preparation of contracts and reports for sub-division development. Location, Eastern United States preferred, not necessary. C-3615.

**CIVIL ENGINEER.** Jun. Am. Soc. C. E.; graduate, Mass. Inst. Tech.; desires position as structural steel or concrete designer. Foreign location preferable. Two years' experience in Venezuelan oil-fields, construction, design, in charge cost-keeping, and estimating; 1½ years' private practice, New Mexico, designed and built houses, sewers, swimming pools, roads, National Guard stables and rifle range. C-4387.

**ESTIMATING AND VALUATION ENGINEER.** Assoc. M. Am. Soc. C. E.; graduate civil engineer; registered professional engineer, State of New York; age 32. Twelve years' experience, civil engineering, construction estimates, cost studies, valuation of railroad properties, preparation of engineering reports, field investigations. Desires connection with public utility, railroad, contractors, or appraisal engineers. C-5870.

**CIVIL ENGINEERING INSTRUCTOR.** Assoc. M. Am. Soc. C. E.; age 29; engineering college graduate; two years post-graduate work in structural engineering. Five years, responsible teaching, civil engineering subjects; practical experience, structural design and detailing; licensed structural engineer, New Jersey. Desires position teaching structural engineering or with structural company. C-6354.

**RECENT GRADUATE CIVIL ENGINEER** (1929), Jun. Am. Soc. C. E.; some experience in highway work, practical surveying, and detailing. Desires active, and preferably outside work, such as sales, estimating, etc. Good scholastic rating. Location, immaterial. C-6966.

**CIVIL ENGINEER.** Jun. Am. Soc. C. E.; more than ten years' experience; seven years, responsible charge, field and office. Surveys, design, plans, specifications, estimates, reports, supervision, for pavements, sewers, water, subdivisions, town sites. Reinforced concrete design. Registered Professional Engineer. Now employed, but desires permanent connection with engineer or contractor, with better chance for advancement. Location immaterial. C-7452.

**CIVIL ENGINEER.** Jun. Am. Soc. C. E.; 1927 graduate, B. S.; degree C. E.; age 26; married. Desires field or office appointment with consulting engineer, municipality, contractor, or industrial concern. Three years' general experience with public works, responsible capacity, harbor dredging, water distribution system, gunite reservoir repairs, pier and sea wall construction, general construction. C-7463.

**CIVIL ENGINEER.** Jun. Am. Soc. C. E.; Graduate, Rensselaer Polytechnic Institute, 1928; age 24; single. Two years' experience, State highways, field and office; designing, detailing, estimating steel, concrete highway bridges. Desires field or office position, Mexico, Central America, or South America. Excellent references from present employer. Available any time. C-7469.

**CIVIL ENGINEER.** Jun. Am. Soc. C. E.; B. S. in C. E., from Iowa State College; Registered in Iowa; age 26; married. Three years' experience, proportioning plant inspector, summer months; instrumentman and resident engineer's assistant, winter months. Desires one or two years work in sanitary field prior to entering school for Master's Degree in Sanitary Engineering. C-7471.

**GRADUATE CIVIL AND ARCHITECTURAL ENGINEER.** Assoc. M. Am. Soc. C. E.; age 35; married; now employed. Eight years' responsible charge, structural design and construction. Good knowledge, heating, ventilation, plumbing, and electrical work. Experienced specification writer. Desires executive position with leading architects, engineers, or contractors. United States or abroad. Speaks fluently, French, German, Spanish. Available on three weeks' notice. C-7472.

**CONSTRUCTION ENGINEER OR EXECUTIVE.** Assoc. M. Am. Soc. C. E.; age 30; married; graduate engineer; registered engineer; eight years' experience, designing, estimating, managing construction of commercial buildings, two in Latin-America. Speaks Spanish fluently. Available now, preferably in Latin-America. C-7542.

**CIVIL ENGINEER.** Jun. Am. Soc. C. E.; B. S. degree, 1929; age 24; single; has experience in surveying, highway and bridge constructions, 1½ years. Some office experience during school years. Desires position in South America. C-7632.

NAME	POSITION	ASSOCIATION	DATE
AANONSEN, Nils.	Res. Engr., Pacific Gas & Elec. Co., Martell, Calif.	Assoc. M.	June 9, 1930
ALLEN, Charles Winsor.	Instr., Dept. of Civ. Engr., Ohio State Univ. (Res., 65 Thirteenth Ave.), Columbus, Ohio.	Jun.	April 7, 1930
AMES, Elmer Ruel.	Engr. in Chg., Petroleum Dept., Texas Creosoting Co., Orange, Tex.	Assoc. M.	April 7, 1930
AMMANN, Werner.	Draftsman, H. G. Balcom, 10 East 47th St., New York, N. Y. (Res., 272 Rockaway Ave., Bonton, N. J.)	Jun.	May 12, 1930
ARCH, Walter.	531 Collins Ave., Pittsburgh, Pa.	Jun.	Dec. 16, 1929
BABCOCK, Edward Perry.	Prin. Asst. Engr., I. F. Stern, Room 1765, First National Bank Bldg., Chicago, Ill.	M.	June 9, 1930
BACHMANN, Frank.	Mgr., San. Div., The Dorr Co., Inc., 333 North Michigan Ave., Chicago, Ill.	M.	June 9, 1930
BARKMANN, Ernst Henry.	Asst. Chf. Engr., Missouri Val. Bridge & Iron Co., Leavenworth, Kans.	Assoc. M.	Oct. 7, 1928
BARNES, Calvin.	122 East Jackson St., Orlando, Fla.	M.	May 12, 1930
BATCHELLOR, John Kenneth.	Instr., Civ. Engr. Dept., Rensselaer Polytechnic Inst., Roebling Dormitory, Rensselaer Polytechnic Inst., Troy, N. Y.	Jun.	Oct. 14, 1929
BATEMAN, Albert John.	City Engr., Lynwood (Res., 124½ Ximeno, Long Beach), Calif.	Jun.	May 12, 1930
BEANFIELD, Rufus McClellan.	Cons. Engr., 608 Chamber of Commerce Bldg. (Res., 1876 Middleton Pl.), Los Angeles, Calif.	Jun.	Oct. 1, 1928
BELL, Francis Leonard.	Dist. Engr., The Common Brick Mfrs. Assoc. of America (Res., 357 South Summit Ave.), Milwaukee, Wis.	Assoc. M.	Mar. 10, 1930
BELL, Mace Hudson, Jr.	Draftsman, Mt. Vernon Bridge Co., Box 264, Mount Vernon, Ohio.	Assoc. M.	Mar. 11, 1919
BENEDICT, Paul Charles.	Care, U. S. Geological Survey, Boise, Idaho.	M.	June 9, 1930
BERTRAN, Juan Manuel.	Civ. Engr. and Contr., Box 125, San Juan, Porto Rico.	Assoc. M.	June 9, 1930
BINTZ, Wesley.	Cons. Engr., 116½ North Washington Ave., Lansing, Mich.	Jun.	Jan. 13, 1930
BIRD, Harold Crusius.	Chairman and Prof., Civ. Eng., Duke Univ., Durham, N. C.	Jun.	Nov. 11, 1929
BJORKLUND, Karl Vilhelm.	Designer, Parsons, Klapp, Brinckerhoff & Douglas, 84 Pine St., New York, N. Y.	Assoc. M.	June 9, 1930
BLACK, Richard Blackburn.	With Eng. Branch, U. S. Public Service, San Francisco (Res., 6405 Irwin Court, Oakland), Calif.	Assoc. M.	May 28, 1923
BLACK, Russell Van Nest.	City Planner, 502 Otis Bldg., Philadelphia, Pa.	M.	May 12, 1930
BLUCHER, Conrad Meuly.	Proprietor and Chf. Engr., Blucher Eng. Co. (Res., 123 North Carrizo St.), Corpus Christi, Tex.	Jun.	Nov. 27, 1917
BONNEY, Orris.	Sewerage Relief Engr., Div. of Eng., Dept. of Public Service (Res., 297 Brevoort Rd.), Columbus, Ohio.	Assoc. M.	May 12, 1919
BORCHERS, Perry Elmer.	County San. Engr., Montgomery County (Res., 412 West Hillcrest Ave., R. R. No. 1), Dayton, Ohio.	M.	June 9, 1930
BOSSO, Oliver Robert.	Field Engr., Columbia Steel Corporation, San Francisco (Res., 6601 Chabot Rd., Oakland), Calif.	Assoc. M.	June 9, 1930
BOYER, Horace Oswald.	Progress and Estimating Engr., Patrick McGovern, Inc., 50 East 42d St., New York, N. Y.	Jun.	June 9, 1930
BRAYTON, Jean Herkimer.	75 Prospect St., Huntington, N. Y.	Assoc. M.	Feb. 10, 1930
BRESSLER, Henry William.	Constr. Supt., H. D. Hynds, Inc., 959 Eighth Ave., New York (Res., 163 Fremont St., Peeks-kill), N. Y.	Jun.	Oct. 14, 1929
BRITTON, Edmund.	Prin. Engr., Chas. M. Mapes, Inc., 509 Willis Ave. (Res., 1084 Gerard Ave.), New York, N. Y.	Jun.	April 18, 1927
BROOKS, William Edwin.	City Mgr. (Res., 324 Demail Ave.), Morgantown, W. Va.	Assoc. M.	June 9, 1930
BROWN, Carl Wright.	Asst. Chf. Engr., State Highway Dept. (Res., 217 Cherry St.), Jefferson City, Mo.	M.	April 7, 1930
BROWN, Elmer Leigh.	Highway Engr., U. S. Bureau of Public Roads (Res., 3366 Burt St., Apartment 30), Omaha, Nebr.	Assoc. M.	May 12, 1930
BROWNING, Elmer Lawrence.	(Kenneth Markwell and Associates), 1327 Columbian Tower, Memphis, Tenn.	M.	June 9, 1930
BRYAN, Kennerley, Jr.	Managing and Contr. Engr., The Fritz-Rumer-Cooke Co., 206 Interurban Terminal Bldg., Columbus, Ohio.	Jun.	June 9, 1930
BUCKINGHAM, Henry Garwood.	Associate Engr., City Plan Comm., 104 City Hall, Tulsa, Okla.	Assoc. M.	Oct. 12, 1925
BURD, Edward Morris.	Asst. Mgr., Jackson Office, Stevens & Wood, Inc., 212 West Michigan Ave., Jackson, Mich.	M.	April 21, 1930



## MEMBERS—(Continued)

Date of  
Membership.

BURSLEY, Harold Barrows. Associate with E. S. Draper (Res., 1220 Beverly Drive), Charlotte, N. C.....	Assoc. M.	May 12, 1930
CAMP, Thomas Ringgold. Associate Prof., San. Eng., Mass. Inst. Tech., Cambridge A. Mass.....	Jun. Assoc. M. M.	Mar. 7, 1921 May 28, 1923 April 7, 1930
CAMP, Wilmer Eli. Contr. Engr. (Camp & French), 1219 Twenty-eighth St., Sacramento, Calif.....	Assoc. M.	May 12, 1930
CAMPBELL, Paul Frederick. Designer, E. I. DuPont de Nemours & Co. (Res., 633 Harrington St.), Wilmington, Del.....	Assoc. M.	June 9, 1930
CANADA, John Bradley. Student Engr., New York Telephone Co.; 103 Melrose Rd., Mountain Lakes, N. J.....	Jun.	April 7, 1930
CARLIN, Philip Henry. Asst. to Engr. of Design, Dept. of City Transit, City Hall Annex, Philadelphia, Pa.....	Assoc. M.	April 7, 1930
CARLSON, Axel William, Jr. 1022 Gwinnett St., Savannah, Ga....	Jun.	Dec. 16, 1929
CHAWNER, William Rupert. Commercial Engr. The Southern Sierras Power Co., 3771 Eighth St., Riverside, Calif.....	M.	June 9, 1930
CHILD, Harry Charles. Archt. and Engr., 501 South Keystone Ave., Sayre, Pa.....	M.	June 9, 1930
OLARK, John Roy. With T. H. King (Res., 4720 Fifty-sixth St., Route 2, Box 280), San Diego, Calif.....	Assoc. M.	June 9, 1930
CLARKE, Francis William. Office of Pres., Borough of Queens, Long Island City (Res., 112-12 One Hundred and Ninety-sixth St., St. Albans), N. Y.....	Jun.	June 9, 1930
CLARKE, Terence Kennedy. Designer and Checker, Arthur G. McKee & Co., 2422 Euclid Ave., Cleveland, Ohio.....	Assoc. M.	Mar. 10, 1930
CLEMMER, William Bowen. Supt. of Constr., James Baird Co. (Res., 2401 Twelfth St., N. E.), Washington, D. C.....	Affiliate	Mar. 10, 1930
COLLIER, Erwin Tilden. Bernard Lodge, Spanish Town, Jamaica.	Jun.	Oct. 14, 1929
COMBER, Thomas Francis, Jr. Instr. and Associate, Civ. Engr., The Johns Hopkins Univ. (Res., 329 Birkwood Pl.), Baltimore, Md.....	Assoc. M. M.	Jan. 19, 1925 Jan. 13, 1930
COOPER, Andrew Jackson. Chf. Draftsman and Structural Engr., Robert & Co., 706 Bona Allen Bldg., Atlanta, Ga.....	Assoc. M.	May 12, 1930
CORBETT, Don Melvin. Associate Engr., U. S. Geological Survey, P. O. Bldg., Tuscaloosa, Ala.....	Assoc. M.	April 7, 1930
COUGHLIN, Robert Emmet. Lieut., Corps of Engrs., U. S. A., Instr., Iowa State Univ. (Res., 703 Roosevelt St.), Iowa City, Iowa.....	Assoc. M.	Dec. 16, 1929
CRAIG, Franklin Curtiss. Junior Hydr. Engr., U. S. Geological Survey, Bonners Ferry, Idaho.....	Jun.	May 12, 1930
CRANDALL, James Stuart. Treas. and Engr., The Crandall Eng. Co., 134 Main St., Cambridge A. Mass.....	Assoc. M. M.	June 7, 1926 April 21, 1930
CROOM, Thomas Green. With Bureau of San. Eng., State Board of Health, Box 242, Concord, N. C.....	Jun.	April 7, 1930
CRUTE, Stanley. With W. H. Crute, 91 Howe St., New Haven, Conn.....	Assoc. M.	May 12, 1930
CUSHING, Allston Tattre. Senior Valuation Engr., U. S. Dept. of Agriculture, 508 Huntzinger Bldg., Kansas City, Mo.....	Assoc. M. M.	Nov. 12, 1928 April 21, 1930
DALHOUSE, John Buck. 1502 Stokes Ave., S. W., Atlanta, Ga....	Jun.	Jan. 13, 1930
DANIELS, Francis Wallin. Project Engr., The H. K. Ferguson Co. (Res., 1902 Cedric Rd.), Baltimore, Md.....	Assoc. M.	June 9, 1930
DAVIN, Joseph William. Salesman, Telfair Stockton & Co., 329 Laura St., Jacksonville, Fla.....	Jun. Assoc. M.	Mar. 16, 1925 Nov. 11, 1929
DAWLEY, Earle Reed. Associate Prof., Kansas State Agri. Coll. (Res., 1200 Kearney St.), Manhattan, Kans.....	Assoc. M. Jun. Assoc. M. M.	June 9, 1930 Feb. 4, 1914 June 1, 1920 June 9, 1930
DE CHARMS, Richard. 1993 St. Paul St., Rochester, N. Y.....		
DECOSTA, Joseph David. San. Engr., East Bay Municipal Utility Dist., Oakland (Res., 41 Lenox Rd., Berkeley), Calif.....	Assoc. M.	April 7, 1930
DEWEY, Earl Kent. Supt., Turner Constr. Co., New York (Res., 1844 Haring St., Brooklyn), N. Y.....	Assoc. M.	May 12, 1930
DISNEY, Lindsay Pettit. Chf., Section of Predictions, Div. of Tides and Currents, U. S. Coast and Geodetic Survey (Res., 1760 Kilbourne Pl., N. W.), Washington, D. C.....	Assoc. M.	May 12, 1930
DOANE, Louis Henry. Structural Engr., Philadelphia Office, Portland Cement Assoc., 1315 Walnut St., Philadelphia (Res., 136 Central Ave., North Glenside), Pa.....	Jun. Assoc. M.	June 19, 1922 April 7, 1930
DOLE, Norman Dorset. Distrib. Foreman, Pacific Gas & Elec. Co., Sacramento Div., 1100 K St. (Res., 2142 Fourth Ave.), Sacramento, Calif.....	Jun.	Oct. 14, 1929
DONNELLY, Jack Aden. 32 Alamo Pl., Buffalo, N. Y.....	Jun.	Oct. 14, 1929
DORNBLOTT, Bernhard. Asst. to Locating Engr., State Highway Dept., Box 202, Athens, Ga.....	Jun. Jun. Assoc. M. M.	April 7, 1930 Jan. 13, 1919 Dec. 14, 1925 April 7, 1930
DOWD, Munson Julius. Chf. Engr. and Gen. Supt., Imperial Irrig. Dist., Imperial, Calif.....		
DRUMMY, John Ready. Special Representative, Volunteer Portland Cement Co., 915 Holston Bank Bldg., Knoxville, Tenn....	Assoc. M.	June 9, 1930
DUNCAN, Daniel Tompkins. With Murray & Flood; Route 2, Columbia, S. C.....	Assoc. M.	June 9, 1930

	MEMBERS—(Continued)		Date of Membership.	
	Jun.	Oct.	21, 1924	
DWYRE, Burton Golding. County Engr. and County Surv., Grant County; U. S. Mineral Surv., Dist. of New Mexico; City Engr., Silver City, N. Mex. ....	Assoc. M.	May	12, 1930	
EASON, Ralph Lee. Chf. Engr., Koerner Eng. Co. (Res., 2840 Watson Rd.), St. Louis, Mo. ....	Jun.	June	9, 1930	
EDWARDS, Frank William. Engr., Hydr. Dept., Management & Eng. Corporation, B & I Bldg., Dubuque, Iowa. ....	Jun.	April	7, 1930	
ENGSTROM, Leonard Michael. With State Bridge Office, Box 93, Frankfort, Ky. ....	Jun.	April	7, 1930	
ENNIS, William Joseph. Deputy Bldg. Commr., Dept. of Bldg. Inspection (Res., 330 Cornwall St.), Hartford, Conn. ....	Assoc. M.	June	1, 1925	
	M.	June	9, 1930	
FAHLQUIST, Frank Edwin. Asst. Engr., Met. Dist. Water Supply Comm., Holden, Mass. ....	Jun.	Aug.	31, 1925	
FARNHAM, Charles Sherman. Associate Prof., Civ. Eng., Yale Univ. (Res., 211 Norton St.), New Haven, Conn. ....	Assoc. M.	Jan.	13, 1930	
FENTON, Ely Gray. Asst., Engr. Corps, P. R. R., Pittsburgh, Pa. (Res., 511 Kenilworth Ave. S. E., Warren, Ohio) ....	M.	June	9, 1930	
FICKERT, Marshall Marron. 1060 Green St., San Francisco, Calif. ....	Jun.	May	12, 1930	
FINCH, Stanley Phister. Prof., Civ. Eng. and Director, Bureau of Eng. Research, Univ. of Texas (Res., 3312 Duval St.), Austin, Tex. ....	Jun.	June	9, 1930	
	Assoc. M.	Oct.	30, 1906	
	M.	May	7, 1913	
	M.	April	7, 1930	
FINNEY, Ronald Dale. Asst. Engr. of Materials, State Highway Comm. (Res., 1138 Randolph St.), Topeka, Kans. ....	Assoc. M.	May	12, 1930	
FLOM, Samuel Louis. Branch Mgr., Tampa Office, Truscon Steel Co., Box 2362, Tampa, Fla. ....	Jun.	Nov.	15, 1926	
FREEMAN, Andrew Yates. Junior Design Engr., Dept. of Bridges, Alleghany County (Res., 2510 Perryville Ave.), Pittsburgh, Pa. ....	Assoc. M.	April	7, 1930	
FUECHSEL, Charles Frederick. Asst. Topographic Engr., U. S. Geological Survey, Colebrook, N. H. ....	Jun.	Feb.	10, 1930	
GAINES, Frank Pendleton. Box 260, Frankfort, Ky. ....	Jun.	Dec.	16, 1929	
GALBREATH, William Otto. Valuation Engr., U. S. Dept. of Agriculture, 508 Huntzinger Bldg. (Res., 3539 Olive St.), Kansas City, Mo. ....	Assoc. M.	April	6, 1904	
	M.	April	7, 1930	
GAMBLE, Clarke William. Union Club, Victoria, B. C., Canada. ....	M.	June	9, 1930	
GARDNER, Thomas Herbert. Structural Engr., Florida East Coast Ry. (Res., 53 South Park Ave.), St. Augustine, Fla. ....	Assoc. M.	June	9, 1930	
GARRETT, William Hayden. Asst. Res. Engr., McLennan County, State Highway Dept., Box 1322, Waco, Tex. ....	Jun.	Dec.	3, 1928	
GARLISON, Sydney Wood. Designer and Sales Engr., The Southern General Fireproofing Co., 1463 Talbot Ave., Jacksonville, Fla. ....	Assoc. M.	June	9, 1930	
	Jun.	Nov.	21, 1921	
	Assoc. M.	May	12, 1930	
GARVER, Neal Bryant. Bridge Engr., State Highway Comm.; Bridge and Structural Engr. (Res., 2314 Wolfe St.), Little Rock, Ark. ....	Assoc. M.	May	3, 1910	
	M.	May	12, 1930	
GENTLEMAN, Lawrence Miles. Asst. Engr., Designing Div., Met. Dist. Water Supply Comm., Easton (Res., 16 Marlon Rd., Watertown), Mass. ....	Assoc. M.	May	12, 1930	
GEREN, Preston Murdoch. Chf. Engr., Wyatt C. Hedrick, Inc., 1005 First National Bank Bldg., Fort Worth, Tex. ....	Assoc. M.	July	6, 1920	
GERNER, Anson John. Irrig. Engr., Fresno Irrig. Dist., 1001 Griffith-McKenzie Bldg., Fresno, Calif. ....	M.	Mar.	10, 1930	
GEWERTZ, Moe William. 1025 South Normandie Ave., Los Angeles, Calif. ....	Assoc. M.	May	13, 1918	
	M.	May	12, 1930	
GILLON, Frank Patrick. 150 Davenport Ave., New Haven, Conn. ....	Jun.	Feb.	10, 1930	
	Jun.	Nov.	11, 1929	
GOINES, Laurence Archibald. City Mgr., Alliance, Nebr. ....	Assoc. M.	Nov.	26, 1923	
	M.	May	12, 1930	
GOODRICH, Chauncey Marsh. Chf. Engr., The Canadian Bridge Co., Ltd., Walkerville, Ont., Canada. ....	M.	April	7, 1930	
GRAND, Harris. Asst. Engr., Grade 1, State Div. of Highways (Res., 44 Mason Ave.), Babylon, N. Y. ....	Jun.	Jan.	18, 1926	
GRAVES, Arthur Roselle. Estimator and Designer, Bethlehem Steel Co. (Res., 551 East Goepf St.), Bethlehem, Pa. ....	Assoc. M.	June	9, 1930	
GREENLEAF, Fred Bacon. Treas., J. A. Greenleaf & Sons Co., 20 Washington St., Auburn, Me. ....	Assoc. M.	Oct.	1, 1926	
GREY, Ulric Rupert. Civ. Engr., 988 Market St., Room 712, San Francisco, Calif. ....	M.	April	21, 1930	
	Assoc. M.	Aug.	31, 1915	
	M.	June	9, 1930	
GRILL, George Matthias. 2040 Seventh Ave., New York, N. Y. ....	Assoc. M.	June	9, 1930	
GROENENDYKE, Jacobus Patrice, Jr. Care, A. Guthrie & Co., Pachacayo, Peru. ....	Jun.	June	9, 1930	
GROSHKO, John Ivan. Office Engr., Wayne County Road Comm. (Res., 3813 Gilbert Ave.), Detroit, Mich. ....	Jun.	Dec.	16, 1929	
GROSSHANS, Donovan Porter. Asst. Engr., The Mahoning Val. San. Dist., 901 City Bank Bldg., Youngstown, Ohio. ....	Assoc. M.	June	9, 1930	
GROVE, George Thomas. City Engr. (Res., 921 North 1st Ave.), Tucson, Ariz. ....	Assoc. M.	June	9, 1930	
GRUPPE, Alfred Henry. Structural Designer, Bureau of Bridges and Bldgs. (Res., 4615 National Ave.), Milwaukee, Wis. ....	Assoc. M.	Jan.	13, 1930	
HABERKORN, Herbert Walter. Field Constr. Engr., Pacific Gas & Elec. Co., 5936 MacCall St., Oakland, Calif. ....	Assoc. M.	May	12, 1930	
	Assoc. M.	May	12, 1930	

## MEMBERS—(Continued)

Date of  
Membership.

HACKETT, Allen Storr. Cons. Engr., 511 Whitney Bldg., New Orleans, La.....	M.	May 12, 1930
HAGEMAN, Earl Livingston. With The Howerton Eng. Co. (Res., 528 Biltmore Ave.), Asheville, N. C.....	Assoc. M.	Nov. 9, 1920
HAINES, Truman Knauer. Draftsman, State Dept. of Highways (Res., 304 Turnpike Ave.), Clearfield, Pa.....	M.	April 21, 1930
HALL, Lewis Watson. Res. Engr., State Highway Dept. (Res., 505 West 3d Pl.), Russellville, Ark.....	Jun.	April 7, 1930
HAMILTON, William Henry. Asst. Office Engr., Stone & Webster Eng. Corporation, Eldon, Mo.....	Assoc. M.	Feb. 10, 1930
HAMMOND, Ross Bassett. Pres. and Gen. Mgr., Ross B. Hammond, Inc., 1311 Public Service Bldg., Portland, Ore.....	Jun.	Oct. 1, 1926
HANCOCK, Edwin. Cons. Municipal Engr. (Edwin Hancock Eng. Co.) (Res., 1509 Jackson Boulevard), Chicago, Ill.....	Assoc. M.	June 9, 1930
HAND, Orval Johnson. Care, The U. G. I. Contr. Co., Box 467, Kittanning, Pa.....	M.	April 7, 1930
HANDMAN, Frederick William Adolph. Care, The Shire Highlands Ry., Ltd., Limbe, Nyasaland, British East Africa.....	Assoc. M.	Sept. 10, 1923
HANSON, Terence Charles St. Alwyn. Care, Messrs. Thos. Cook & Son (Bankers), Ltd., Berkeley St., London W. 1, England....	M.	June 9, 1930
HARDY, Nathaniel White. Archt. and Engr. (Hardy & Curran), 709 Nixon Bldg., Corpus Christi, Tex.....	Jun.	May 12, 1930
HARNISH, Cornelius Prugh. Civ. Engr. (Olmsted & Gilleten), 1112 Hollingsworth Bldg., Los Angeles (Res., 300 North Almansor St., Alhambra), Calif.....	M	Feb. 10, 1930
HARRIS, George Wentz. Civ. Engr. and Surv., 484 Bloomfield Ave., Montclair, N. J.....	Assoc. M.	Feb. 10, 1930
HART, Clarence Eugene. Box 64, Johnsonville, N. Y.....	Assoc. M.	June 9, 1930
HAWKINS, Charles Winstead. 608 Cotton States Bldg., Nashville, Tenn.....	M.	June 9, 1930
HAYDEN, Jackson Bird. Asst. Engr., Dept. of Public Works, Montclair (Res., 407 Passaic Ave., Nutley), N. J.....	Jun.	Oct. 14, 1929
HEATLEY, Thomas. Asst. Engr., Office of Borough Pres. of the Bronx, Borough Hall, 3d Ave. and 177th St. (Res., 792 Fairmount Pl.), New York, N. Y.....	Jun.	Jan. 13, 1930
HEFLING, Arthur William. City Engr., Box 160, Hutchinson, Kans.....	Jun.	May 19, 1924
HESS, Seth Gerson. Prin. Asst. Engr., Alexander Potter, 50 Church St. (Res., 242 West 76th St.), New York, N. Y.....	Assoc. M.	May 12, 1930
HOFFMAN, Ralph Austin. Bridge Engr., State Highway Dept. (Res., 1243 East McDowell Rd.), Phoenix, Ariz.....	Assoc. M.	Jan. 15, 1917
HOMMON, Chester Elmer. County Engr., Clark County, Ashland, Kans.....	M.	April 21, 1930
HORVATH, Charles John, Jr. 48 Lowell St., Carteret, N. J.....	Assoc. M.	May 12, 1930
HOTZ, Arthur Randolph. Engr., Kalman Steel Co., New York, N. Y. (Res., 321 Windsor Rd., Woodridge, N. J.).....	Jun.	Oct. 14, 1929
HOWELL, Robert Philip. 5419 Germantown Ave., Philadelphia, Pa.	Assoc. M.	May 12, 1930
HOWSER, Theron Robinson. Topographical Draftsman, City of Portland, Portland, Ore.....	Jun.	Dec. 16, 1929
HUGHES, Conard Percy. Care, Price Brothers Co., Harries Bldg., Dayton, Ohio.....	Assoc. M.	Oct. 14, 1929
HUNT, Thomas Dewick. County Engr., King County, 536 County City Bldg., Seattle, Wash.....	Jun.	Jan. 13, 1930
HUSKISSON, Gordon Frank. Engr.-in-Chg., South West African Administration, Box 207, Windhoek, Southwest Africa.....	Assoc. M.	Dec. 14, 1925
IORNS, William Vaughn. Junior Hydr. Engr., U. S. Geological Survey, Federal Bldg., Boise, Idaho.....	M.	April 21, 1930
JAHLSTROM, Ilmar Oscar. Res. Engr., Bridges, State Highway Comm., Box 514, Oroville, Calif.....	Jun.	Mar. 10, 1930
JANSEN, Carlton B. Supt. of Constr., Dravo Contr. Co., Pittsburgh (Res., 107 Hamden Rd., Upper Darby), Pa.....	Jun.	Mar. 15, 1926
JEFFERS, Paul Eells. Structural Engr., 816 West 5th St., Los Angeles, Calif.....	Assoc. M.	May 12, 1930
JEUP, Bernard Henry. San. and Testing Engr., Jeup & Moore, 930 K. of P. Bldg. (Res., 2415 Talbott Ave.), Indianapolis, Ind.....	Assoc. M.	May 12, 1930
JOHNSON, Robert Milton. Junior Asst. Civ. Engr., State Dept. of Public Works, Div. of Highways (Res., 1145 Park Ave.), Utica, N. Y.....	M.	June 9, 1930
JOHNSON, Ruben Cumbly. Associate Prof., Civ. Eng., Univ. of South Carolina (Res., 1507 Pendleton St.), Columbia, S. C.....	Jun.	June 9, 1930
JONES, Halsey Robinson. 2400 Wydesteel St., Youngstown, Ohio.	Assoc. M.	Feb. 10, 1930
KANTERS, Englebert Christian. Civ. Engr. (Res., 1902 Thirty-first St.), San Diego, Calif.....	Jun.	Oct. 1, 1926
KASEL, Rudolph Gustav. Asst. Hydr. Eng., U. S. Geological Survey, Federal Bldg., Boise, Idaho.....	Assoc. M.	Feb. 10, 1930
KASS, Nathan Isidor. Asst. Engr., Nicholas S. Hill, Jr., 112 East 19th St., New York (Res., 167 Beaumont St., Manhattan Beach, Brooklyn), N. Y.....	Assoc. M.	Feb. 10, 1930
	Jun.	Jan. 13, 1930
	Assoc. M.	June 9, 1930
	Jun.	Dec. 15, 1924
	Assoc. M.	May 12, 1930
	Assoc. M.	April 7, 1924
	M.	April 7, 1930

MEMBERS—(Continued)		Date of Membership.	
KAY, Thad Alexander. Designer, Freyn Eng. Co. (Res., 7050 North Paulina St.), Chicago, Ill.	Assoc. M.	Feb. 10, 1930	
KING, Parker Powell. 27 West Church St., Bethlehem, Pa.	Jun.	Oct. 14, 1929	
KINGSBURY, William Stephen, Jr. Engr., Soule Steel Co. (Res., Hotel Roosevelt, Jones and Eddy Sts.), San Francisco, Calif.	Assoc. M.	April 7, 1930	
KIRKHAM, Henry Parsons. With Constr. Dept., The Brooklyn Union Gas Co. (Res., 610 Sixth St.), Brooklyn, N. Y.	M.	June 9, 1930	
KIST, Herman Jacob. Designer, The Texas Co., 17 Battery Pl., New York (Res., 105 Hillcrest Terrace, Grasmere), N. Y.	Jun.	Dec. 15, 1924	
KOFMAN, Manashah. With Elec. Bond & Share Co., 2 Rector St., New York (Res., 3820 Lyme Ave., Brooklyn), N. Y.	Assoc. M.	June 9, 1930	
KOHLER, Mervin Howard. Asst. Engr., Bureau of Eng. and Surveys (Res., 960 Wagner Ave.), Philadelphia, Pa.	Assoc. M.	June 9, 1930	
KREGER, Lynn Stuart. Frankfort, Mich.	Jun.	Oct. 14, 1929	
LANDWEHR, Waldemar John. Engr., Daniel W. Mead and Charles V. Seastone, State Journal Bldg., Madison, Wis.	Jun.	April 7, 1930	
LANGBEHN, Ernst Christian, Jr. Insp., Eng. Dept., City of Columbus (Res., 1060 South High St.), Columbus, Ohio.	Jun.	Mar. 10, 1930	
LANGE, Harold John. Junior Engr., State Highway Comm. (Res., 26 Nye Ave.), Newark, N. J.	Jun.	Dec. 16, 1929	
LAURENT, Raymond Joseph. 515 Buchanan St., Lafayette, La.	Jun.	Nov. 11, 1929	
LAVERTY, Finley Burnap. Res. Engr., Meyer & Holler, Inc. (Res., 5332 Abbott Pl.), Los Angeles, Calif.	Jun.	Oct. 12, 1925	
LEE, William States, Jr. Vice-Pres., W. S. Lee Eng. Corporation (Res., 2601 Sherwood Ave.), Charlotte, N. C.	Assoc. M.	May 12, 1930	
LEWALD, Alfred. Pres. and Treas., Alfred Lewald, Inc., 6025 West Cabanne Pl., St. Louis, Mo.	Jun.	July 11, 1927	
LEWIS, Chester Franklin. Cons. Engr. (Spoon & Lewis), Box 990, Greensboro, N. C.	Assoc. M.	April 7, 1930	
LEWIS, Palmer Gates. Local Mgr., Pacific Waste Paper Co., 2942 East Marginal Way, Seattle, Wash.	Assoc. M.	Nov. 27, 1917	
LITTLEFIELD, William Morris. Junior Engr. (Hydrographer), U. S. Geological Survey, 23 Federal Bldg., Topeka, Kans.	M.	June 9, 1930	
LOCITZER, David. Asst. to D. M. Olmarsh, 36 West 44th St., New York (Res., 2141 Eighty-fifth St., Brooklyn), N. Y.	Assoc. M.	Nov. 15, 1926	
LONG, John Hampton. Engr., Special Assignments, State Highway Dept. (Res., 211 Manilla), Jefferson City, Mo.	M.	April 21, 1930	
LOPEZ HARRISON, Manuel Eugenio. Supt., R. W. Hebard & Co., Inc., Avenida Espana 73, San Salvador, Salvador.	Jun.	Oct. 14, 1929	
LORING, Henry Delano. Secy. and Treas., The Ferro Concrete Constr. Co. (Res., 1273 Michigan Ave.), Cincinnati, Ohio.	Assoc. M.	Feb. 10, 1930	
LUCY, Thomas Alexander. Vice-Pres. and Chf. Engr., The Ingalls Steel Products Co. (Res., 1015 South 17th St.), Birmingham, Ala.	Assoc. M.	July 9, 1912	
MACKENZIE, Ray Elliott. Associate Hydro-Elec. Engr., U. S. Engr. Office, Immigration Bldg., Fort McHenry, Baltimore, Md.	M.	June 9, 1930	
MACKIE, James Everett. Structural Engr., National Lumber Mfrs. Assoc., 500 Call Bldg., San Francisco, Calif.	Jun.	Jan. 16, 1922	
MACWILLIAM, Charles Milton, Jr. Structural Engr., Paul Sheldon (Res., 20 Frederick St.), Hartford, Conn.	Assoc. M.	April 7, 1930	
MCCAMY, Roy Lee. Draftsman, Eng. Dept., Georgia Power Co., Atlanta, Ga.	Assoc. M.	Nov. 26, 1923	
MCCLEERY, Merle Grant. Junior Engr., U. S. Bureau of Reclamation (Res., 615 Washington St.), Denver, Colo.	Assoc. M.	June 9, 1930	
MCCONNELL, Edward Herbert. Locating and Res. Engr., Virginian & West. Ry., Pineville, W. Va. (Res., 312 Avenham Ave., Roanoke, Va.)	Jun.	May 12, 1930	
McFARLAND, Daniel Robert. Engr., Yuba Associated Engrs., San Francisco, Calif.	Jun.	Feb. 10, 1930	
McKEEVER, Harold James. Copywriter, Industrial Div., Dyer Enzinger Co., Century Bldg., Milwaukee, Wis. (Res., 7861 C South Shore Drive, Chicago, Ill.)	Jun.	April 7, 1930	
MAINWARING, Albert Harold. Asst. Engr., Bureau of Highways (Res., 354 Delmar St., Roxborough), Philadelphia, Pa.	Jun.	Mar. 13, 1917	
MALCOM, Vincent Valentine. Dist. Mgr., The Philip Carey Co., 334 Keeline Bldg., Omaha, Neb.	M.	April 21, 1930	
MALLEY, Herbert. 201 Sigourney St., Hartford, Conn.	Assoc. M.	Aug. 9, 1920	
MANGAN, John William. Associate Hydr. Engr., U. S. Geological Survey (Res., 1835 K St., N. W., Apartment 202), Washington, D. C.	M.	April 7, 1930	
MASON, John Glenn. State Bridge Engr., State Dept. of Public Works (Res., 2200 Franklin Ave.), Lincoln, Neb.	Jun.	Mar. 12, 1923	
MAYPER, Victor. Engr. and Archt., 110 West 40th St., New York, N. Y.	Assoc. M.	Feb. 10, 1930	
MEAD, Harold Washburn. Res. Engr., Daniel W. Mead-Charles V. Seastone, State Journal Bldg., Madison, Wis.	M.	June 9, 1930	
MENDEZ, Enrique. Care, Central Constancla, Toa Baja, Porto Rico	M.	June 9, 1930	
MEYERS, J. Stuart. Graduate Asst. in Hydraulics, Univ. of Iowa, 207 Eng. Bldg., Univ. of Iowa, Iowa City, Iowa	Assoc. M.	Mar. 7, 1921	
	M.	Dec. 15, 1924	
	M.	April 21, 1930	
	Jun.	Feb. 10, 1930	
	Jun.	April 7, 1930	



## MEMBERS—(Continued)

	Date of Membership.
MIDDLETON, Ellis Gormly. Asst. Div. Engr., State Road Comm., Charleston, W. Va. ....	Assoc. M. Dec. 4, 1922
MILLER, Henry Samuel. Box 260, Frankfort, Ky. ....	M. April 21, 1930
MILLER, Joseph James. Res. Engr., State Highway Comm., Box 354, Hill City, Kans. ....	Jun. Nov. 11, 1929
MIZE, Theron Neal. Casilla 3098, Santiago, Chile. ....	Assoc. M. June 9, 1930
MOORE, Henry Duncan. Associate Engr., U. S. Engr. Dept., New Orleans River Dist., U. S. Engr. Office, Foot of Prytania St., New Orleans, La. ....	Assoc. M. Feb. 10, 1930
MORANTI, Paul Joseph. Pres., Paul J. Moranti, Inc., 115 Broad St., New York, N. Y. Affiliate Aug. 29, 1927. ....	M. June 9, 1930
MORRIS, Robert Farley. Gen. Bldg. Supt., J. A. Bryant (Res., 630 Palmetto Ave.), San Francisco, Calif. ....	M. April 21, 1930
MORROW, Frederick Edgar. Chf. Engr., C. & W. I. R. R. and The Belt Ry. of Chicago, Room 315, Dearborn Station, Chi- cago, Ill. ....	Assoc. M. April 7, 1930
MUSS, Joshua. Asst. Township Engr., Municipal Bldg. (Res., 101 Twenty-ninth St.), North Bergen (West New York P. O.), N. J. ....	Assoc. M. Nov. 8, 1909 M. Mar. 10, 1930
MUSS, Joshua. Asst. Township Engr., Municipal Bldg. (Res., 101 Twenty-ninth St.), North Bergen (West New York P. O.), N. J. ....	Assoc. M. Mar. 15, 1926 M. April 21, 1930
NEILL, Clayton Bewley. Junior Engr., Loveland Engrs., Inc., 485 California St., Room 1010, San Francisco, Calif. ....	Jun. Dec. 5, 1927
NELSON, Harry Lloyd. Western Research Engr. and Acting Pitts- burgh Sales Agt., U. S. Pipe & Foundry Co., 412 Oliver Bldg., Pittsburgh, Pa. ....	Assoc. M. April 7, 1930 Jun. Mar. 16, 1925 Assoc. M. June 9, 1930
NEWCOMER, Albert Waldo. Draftsman, Middle Rio Grande Con- servancy Dist., Albuquerque, N. Mex. ....	Jun. July 11, 1927
NEWELL, Hiram Edgar. Sales Engr., Pure Iron Culvert & Mfg. Co., 763 Gladstone Ave. (Res., 500 Going St.), Portland, Ore. ....	Assoc. M. Nov. 11, 1929
NOE, Thomas Pasteur, Jr. 214 Henderson St., Chapel Hill, N. C. ....	Assoc. M. June 9, 1930
NORCROSS, Fernando Treat. Secy., Treas. and Superv. Engr., John H. Small III, Inc., 1501 Connecticut Ave., Washing- ton, D. C. ....	Jun. Feb. 10, 1930 M. Feb. 10, 1930
OELKERS, Carl Ludwig. City Engr. (Res., 39 Sweeney Parkway), North Tonawanda, N. Y. ....	M. Feb. 10, 1930
ORNDORFF, Roy Lee. Engr.-Draftsman, Fruit Growers Express Co., Munsey Bldg., Washington, D. C. (Res., 116 South Vir- ginia Ave., Clarendon, Va.) ....	Assoc. M. Mar. 10, 1930
ORR, Ernest Irving. Care, Peindexter & Orr L. S. Co., Dillon, Mont. ....	Jun. Dec. 16, 1929
PACKARD, Bruce Gordon. 1112 West 4th St., Sioux City, Iowa. ....	Jun. April 7, 1930
PADDOCK, Walter Milan. Civ. Engr., Rodgers & Hagerty, Inc. (Res., 4530 Hoxie St.), New York, N. Y. ....	Jun. Oct. 14, 1929
PALESTINE, Herman. Structural Draftsman, Board of Transpor- tation, 250 Hudson St., New York (Res., 483 Linden Boule- vard, Brooklyn), N. Y. ....	Assoc. M. May 12, 1930
PAPE, Henry Joseph Crawford. Technical Expert and Advisor, The Asiatic Petroleum Co.; 12 Alexander Terrace, Swansea, South Wales. ....	Jun. Feb. 10, 1930
PARRISH, William Collier. Box 33, Lebanon, Tenn. ....	Assoc. M. Dec. 16, 1929
PEASLEE, John Herbert. Asst. Hydr. Engr., Div. of Water Re- sources (Res., 2810 E St.), Sacramento, Calif. ....	Jun. Nov. 11, 1929
PFEIFFER, George Frederick. Engr. with County Engr., Summit County (Res., 2415 East Market St.), Akron, Ohio. ....	Assoc. M. May 12, 1930
POLKINGHORNE, Wilfrid Carlos. Associate Prof., Mech. Eng., Michigan Coll. of Min. and Technology (Res., 105 Clark St.), Houghton, Mich. ....	Assoc. M. Jan. 17, 1921 M. May 12, 1930
POULSEN, Martin Christian. Engr., Clay Products Inst. of Cali- fornia, 611 Archts. Bldg., Los Angeles, Calif. ....	Assoc. M. June 9, 1930
POWERS, Julian Wilson. Engr. of Materials, State Highway Dept. (Res., 1722 West Madison St.), Phoenix, Ariz. ....	M. June 9, 1930
PRENTICE, Edward Harper. City Engr., Municipal Bldg. (Res., 22 Lincoln Ave.), Binghamton, N. Y. ....	Assoc. M. April 7, 1930
PRESTON, Howard Kent. Prof. and Head of Dept., Theoretical and Applied Mechanics, Univ. of Delaware (Res., 42 East Delaware Ave.), Newark, Del. ....	Jun. April 30, 1912 Assoc. M. April 18, 1916 M. April 7, 1930
PURNELL, Raymond George. Designer and Draftsman, Standard Oil Co. of Indiana; 6125 Kenwood Ave., Chicago, Ill. ....	M. May 12, 1930
RANDOLPH, William Couts, Jr. Box 1343, Atlanta, Ga. ....	Jun. Dec. 16, 1929
RANSOM, Alfred Earl. Engr. and Draftsman, Canton Water Works (Res., 1723 Cleveland Ave. N. W.), Canton, Ohio. ....	Assoc. M. June 9, 1930
RASCH, Harry Blandford, Jr. Estimator, International Filter Co. (Res., 4510 Woodlawn Ave.), Chicago, Ill. ....	Jun. Nov. 11, 1929
RAWHAUSER, John Gambell. Res. Engr., Stanford Univ., Box 1621, Stanford University, Calif. ....	Jun. May 12, 1930
RAY, Elbridge William, Jr. 1515 M St., Sacramento, Calif. ....	Assoc. M. April 7, 1930
REGISTER, Robert Thomas. Designing Engr., Div. of Eng. and Constr., City of Columbus, City Hall (Res., 469 East Torrence Rd.), Columbus, Ohio. ....	Jun. Nov. 11, 1929 Jun. Dec. 4, 1922 Assoc. M. June 9, 1930



MEMBERS—(Continued)		Date of Membership.	
RENSHAW, William Clotworthy. Asst. Engr., Spring Val. Water Co., San Francisco (Res., 2618 College Ave., Berkeley), Calif..	Assoc. M.	June 9, 1930	
RICE, George Peter. Cons. Engr., Hibernia Bank Bldg., New Orleans, La.....	Assoc. M.	July 12, 1926	
RICE, Lawrence Grout. Designing Engr., Fuller & McClintock, 170 Broadway, New York (Res., 81 Brookside Pl., New Rochelle), N. Y.....	M.	April 21, 1930	
RIDGE, William Clendenning. Engr., Jones & Laughlin Steel Corporation, Pittsburgh, Pa. (Res., 9 Hibbard Rd., Newton, Mass.).	M.	Jan. 13, 1930	
ROBINSON, Cecil Edward. Checker, Carolina Steel & Iron Co., Greensboro, N. C.....	Assoc. M.	June 9, 1930	
RODGERS, Roe Parker. Junior Highway Engr., U. S. Bureau of Public Roads (Res., 4553 Thackeray Pl.), Seattle, Wash.....	Jun.	June 9, 1930	
ROONEY, William Francis. Constr. Engr., Tide Water Oil Co., 11 Broadway, New York, N. Y.....	Jun.	April 7, 1924	
ROSE, Howard DeWitt. Junior Asst. Engr., Grade 2, State Dept. of Public Works, 43 Cormack Court, Babylon, N. Y.....	Assoc. M.	April 7, 1930	
RUBLE, Roland Orval. Office Engr., Charles A. Haskins, 822 Finance Bldg. (Res., 701 Corbin Terrace), Kansas City, Mo..	Jun.	April 7, 1930	
RUDOLFS, Willem. Chf., Dept. of Sewage Research, State Agri. Experiment Station; Prof. and Head of Dep't., Water Supplies and Sewage Disposal, Rutgers Univ., New Brunswick, N. J.....	Assoc. M.	April 7, 1930	
RUEBTER, William. Associated with E. L. Strandberg, 6111 Arcade Bldg., Seattle, Wash.....	M.	June 9, 1930	
RUGER, Raymond Philip. Structural Draftsman, Reading Co. (Res., 6729 North Carlisle St.), Philadelphia, Pa.....	Assoc. M.	April 7, 1930	
RUSH, Donald Benjamin. Mgr., Cement and Concrete Dept., Robert W. Hunt Co., A-2200 Insurance Exchange, Chicago, Ill....	Jun.	Jan. 14, 1924	
	Assoc. M.	May 12, 1930	
SAIHN, Martin. With Board of Transportation (Res., 2160 Walton Ave.), New York, N. Y.....	M.	May 12, 1930	
SANDLASS, Richard Charles. Cons. Engr. (Sandlass & Wieman), (Res., 4409 Malne Ave.), Baltimore, Md.....	Jun.	June 9, 1930	
SANDNER, Victor Richard. With Weeks & Day, San Francisco (Res., 165 Hillcrest Rd., Berkeley), Calif.....	M.	April 7, 1930	
SAUNDERS, Arthur Lumb. 528 Statler Bldg., Boston, Mass.....	Assoc. M.	Jan. 13, 1930	
SCHARFF, Daniel Laub. 15 South 4th St., Wilmington, N. C.....	Assoc. M.	June 9, 1930	
SCHMIDT, Frederick Adam. 2d Asst. Surv., Bureau of Eng. and Surveys, City of Philadelphia (Res., 2116 West Venango St.), Philadelphia, Pa.....	Assoc. M.	June 9, 1930	
SCHMIDT, Lewis Adelbert, Jr. Care, Michigan Public Service Co., 406 State Bank Bldg, Traverse City, Mich.....	Jun.	Feb. 10, 1930	
SCHMITT, John Joseph, Jr. Asst., Eng. Corps, P. R. R. (Res., 7532 North Damen Ave.), Chicago, Ill.....	Assoc. M.	June 9, 1930	
SCHNEBELEN, Joseph J. Asst. Engr., Bridge Dept., Mo. Pac. R. R., 416 Buder Bldg., St. Louis, Mo.....	Jun.	Jan. 13, 1930	
SCHOONMAKER, Leon Monroe. Cons. Engr., 4 Court Sq., Long Island City, N. Y.....	Assoc. M.	Mar. 10, 1930	
SEGRAVES, Clarence Maxwell. Draftsman and Bridge Designer, D. L. & W. R. R., Hoboken (Res., 399 Lincoln Ave., Orange), N. J.....	Assoc. M.	Aug. 31, 1915	
SERBER, Gilbert Mortimer. Secy.-Treas., D. C. Serber, Inc., 114 West 14th St., New York, N. Y.....	M.	June 9, 1930	
SHADIC, Leo. 29 Fairview Ave., New Brighton, N. Y.....	Assoc. M.	June 9, 1930	
SHATTUCK, Harold Bemis. Prof., Railroad Eng., Pennsylvania State Coll. (Res., 122 West Beaver Ave.), State College, Pa...	Assoc. M.	May 12, 1930	
SHINKLE, Ira Boynton. 806 North L St., Tacoma, Wash.....	M.	May 12, 1930	
SHOEMAKER, Lewis Foulke, Jr. Asst. Gen. Mgr., Shoemaker Bridge Co., Pottstown (Res., Devon), Pa.....	Assoc. M.	Feb. 10, 1930	
SIEVERS, Charles Henry. Engr., Montana, Wyoming & Southern R. R.; 759 Eleventh St., Boulder, Colo.....	Assoc. M.	April 7, 1930	
SILBERMANN, Oscar Emil. Structural Designer, Board of Education, Chicago (Res., 18423 Klimm St., Homewood), Ill.....	M.	May 12, 1930	
SILVERMAN, Isadore Karl. Asst. Dept. of Civ. and San. Eng., Mass. Inst. Tech., Cambridge, Mass.....	Assoc. M.	April 7, 1930	
SMALLWOOD, Thomas Oliver Quinlan. Asst. Hydrographer, East Bay Municipal Utility Dist., 512 Sixteenth St., Oakland, Calif..	Jun.	Mar. 10, 1930	
SMITH, Bernard Joseph. Asst. Engr., Alexander Potter, New York, N. Y. (Res., 704 Pennington St., Elizabeth, N. J.).....	Jun.	Feb. 10, 1930	
SMITH, Edward Daniel. With State Highway Bridge Dept., Box 134, Frankfort, Ky.....	Assoc. M.	Mar. 10, 1930	
SMITH, Morton Snowden. Asst. Supervisor, P. R. R., Parkton, Md.	Assoc. M.	May 12, 1930	
SMITH, Sherwood Badger. 434 Halifax St., Raleigh, N. C.....	Jun.	Nov. 11, 1929	
SNOW, Bayard Francis. Civ. and San. Engr., 6 Beacon St., Room 405, Boston, Mass.....	Jun.	June 9, 1930	
SPIRO, Maxwell. (Maxwell Spiro & Co.) (Res., 9 Gifford Ave.), Jersey City, N. J.....	Assoc. M.	Oct. 2, 1922	
STAPLES, Merton Towne. Prin. Asst. to Chf. Engr., Cornell Contr. Corporation, Brooklyn (Res., 59 Lexington Ave., Lynbrook), N. Y.....	M.	June 9, 1930	
STARR, Charles Frederick. Chf. Engr., Genesee Bridge Co., Inc., 344 West Ave., Rochester, N. Y.....	Assoc. M.	June 9, 1930	
	Jun.	Sept. 10, 1923	
	Assoc. M.	May 12, 1930	
	Assoc. M.	May 19, 1924	
	M.	April 7, 1930	

## MEMBERS—(Continued)

Date of  
Membership.

STEMM, Howard John. Draftsman, Georgia Power Co., Atlanta, Ga.	Jun.	Feb. 10, 1930
STEWART, Paul Arlington. 124 One Hundred and Fifty-Seventh St., Calumet City, Ill.	Jun.	Oct. 14, 1929
STUDDERT, William Walton. Care, Dept. of Highways, Franklin, Pa.	Jun.	Mar. 10, 1930
SWEET, Arthur Jarvis. Dist. Engr., R. H. Randall & Co., Inc., 55 State St., Schenectady, N. Y.	Assoc. M.	June 9, 1930
SWEETSER, Ernest Osgood. Prof., Structural Eng., Washington Univ., St. Louis, Mo.	Assoc. M.	Nov. 27, 1917
SYLVESTER, William Lapp. Asst. Engr., Pearse, Greeley & Hansen; 4414 Cayuga Ave., New York, N. Y.	M.	April 7, 1930
	Assoc. M.	May 12, 1930
TARBET, Roy Edwin. With U. S. Bureau of Public Roads; 1929 Laguna St., Apartment 5, San Francisco, Calif.	Jun.	Oct. 14, 1929
TEAL, Jonathan Ernest. Special Engr., Staff of Vice-Pres. in Chg. of Operation, C. & O. and Hocking Val. Rys., Room 1211, First National Bank Bldg., Richmond, Va.	Jun.	June 1, 1909
THAIN, Alexander. Res. Engr., Bridge Dept., State Div. of Highways, Sacramento (Res., Mayfield), Calif.	Assoc. M.	Oct. 1, 1913
THOMPSON, Harry Lawrence. Draftsman, Middle Rio Grande Conservancy Dist., Albuquerque, N. Mex.	M.	April 7, 1930
THOMPSON, Zachariah Bundy. Senior Res. Engr., State Highway Dept., Selmer, Tenn.	Jun.	Nov. 12, 1928
TIFFANY, Ross Kerr, Jr. Asst. Engr., Grade 2, Public Utilities Dept., City of Tacoma, Camp B. Potlatch, Wash.	Assoc. M.	April 7, 1930
TIMANUS, Clarence Sydney. Associate Engr., Burns & McDonnell, 402 Interstate Bldg., Kansas City, Mo.	Assoc. M.	Feb. 10, 1930
TINDALL, Carroll Leland. Div. Engr. and Div. Supt., Cia. Constructora Latino Americana, Apartado 16, Alajuela, Costa Rica.	Assoc. M.	June 9, 1930
TIPPEE, John Melville. City Engr. (Res., 1754 Marella Trail), Des Moines, Iowa.	Assoc. M.	June 9, 1930
TOENSFELDT, Hans Carl Thomas. Cons. Engr., 15 Park Row, New York, N. Y.	M.	April 7, 1930
TRUESDELL, Archie Merle. Bridge Engr., City of Tacoma (Res., 617 North Anderson St.), Tacoma, Wash.	M.	April 7, 1930
TUCKER, Orville Hugh, Jr. Engr. and Mgr. of Operations, Stanford Board of Athletic Control, Stanford Univ., Box 3006, Stanford University, Calif.	M.	May 12, 1930
TURNER, Will Lawrence. City Engr., Room 16, City Bldg., Martins Ferry, Ohio.	Assoc. M.	May 12, 1930
	Jun.	June 9, 1930
VALERI, Hugo Bonaventuro. Asst. Field Engr., Raritan Copper Works, Perth Amboy, N. J. (Res., 1717 Zerega Ave., New York, N. Y.)	Jun.	Feb. 10, 1930
VAUBEL, Estille Arthur. 508 West Clay, Houston, Tex.	Jun.	Jan. 13, 1930
VERANTH, Joseph. City Engr. (Res., 7 West Sheridan St.), Ely, Minn.	Jun.	April 7, 1930
VETTER, Carl Michael. Div. Engr., Div. of Design, Bureau of Bridges and Structures (Res., 1006 Moyer St., Corliss Station), Pittsburgh, Pa.	Assoc. M.	Mar. 15, 1926
VON SCHOELER, Waldemar Augustine. 3661 Douglas St., El Paso, Tex.	M.	Feb. 10, 1930
VOORHEES, Isaac Spurr. Dist. VII Maintenance Engr., State Dept. of Public Works, Div. of Highways, Los Angeles (Res., 604 Mound Ave., South Pasadena), Calif.	Jun.	June 9, 1930
	Assoc. M.	June 24, 1914
	M.	April 7, 1930
WADDINGTON, John Crossley. Civ. Eng. Contr. (A. Waddington & Son) (Res., Chellow Dene, Barnsley Rd.), Sheffield, England.	Jun.	Nov. 21, 1921
WAGSTAFF, John Perry. Structural Designer, Voorhees, Gmelin & Walker, 101 Park Ave. (Res., 40 West 83d St.), New York, N. Y.	Assoc. M.	Feb. 10, 1930
WALLACE, Robert Wilmot. Secy., Treas. and Gen. Mgr., Barker, Flavin, Sheets & Wallace, Inc., 35 East Wacker Drive, Chicago, Ill.	Jun.	Nov. 15, 1926
WALTON, Howard Lacy. Asst. City Engr., Box 151, South Pasadena, Calif.	Assoc. M.	May 12, 1930
WATSON, Carl Hawley. Designing and Superv. Engr., Bd. of Sewer Comms., Belgrave Sewer Dist.; Pres. and Gen. Mgr., Gregory Coal & Lumber Co. (Res., 46 Grace Ave.), Great Neck, N. Y.	M.	June 9, 1930
WELKER, Philip Lanahan. 1801 Sixteenth St. N. W., Washington, D. C.	Assoc. M.	Jan. 15, 1917
WELLS, Charles. Junior Engr., U. S. Geological Survey, Topeka, Kans.	M.	April 7, 1930
WELLS, Joseph Van Brunt. Junior Engr., U. S. Geological Survey, 904 Home Savings Bank Bldg., Albany, N. Y.	Jun.	May 12, 1930
WERTH, Charles Wesley. Engr., Genesee Bridge Co. (Res., 99 Cady St.), Rochester, N. Y.	Jun.	June 9, 1930
WETZEL, Charles McKinley. Structural Designer Checker, United Engrs. & Constructors, 112 North Broad St. (Res., 5234 Horrocks St.), Philadelphia, Pa.	Jun.	June 9, 1930
WHITWORTH, George Frederick. Office Engr., A. A. Brown, 435 Matson Bldg., San Francisco, Calif.	Assoc. M.	June 9, 1930
	Assoc. M.	Feb. 10, 1930

MEMBERS—(Continued)		Date of Membership.
WIEMAN, George Arnold. Cons. Engr. (Sandlass & Wieman), (Res., 2528 Maryland Ave.), Baltimore, Md.....	M.	April 7, 1930
WILCOX, Albert James. Structural Engr., H. G. Balcom, New York (Res., 3779 One Hundred and Second St., Corona), N. Y..	M.	May 12, 1930
WILLIAMS, George Davis. Paving Engr., City of Beaumont, Eng. Dept., City Hall, Beaumont, Tex.....	Jun.	Jan. 13, 1930
WILLIAMS, John Alonzo. Div. Constr. Engr., State Highway Dept., 508 Wilson Bldg., Camden, N. J.....	Assoc. M.	Nov. 26, 1918
WILLIAMS, Ned. Designer, State Highway Dept., 314 West 25th St., Cheyenne, Wyo.....	M.	April 7, 1930
WILSON, Billings. Deputy Mgr., The Port of New York Author- ity, 75 West St., New York, N. Y.....	Assoc. M.	June 9, 1930
WILSON, Claude Thomas. Princess Hotel, Hamilton, Bermuda..	Assoc. M.	April 19, 1920
WILSON, David Mathias. Asst. Prof. and Chairman, Div. of Civ. Eng., Univ. of Southern California (Res., 114 West 51st St.), Los Angeles, Calif.....	M.	April 21, 1930
WILSON, Harry Augustus. Chf. Engr., Pittsburgh Bridge & Iron Works, Fulton Bldg., Pittsburgh (Res., 168 George St., Roch- ester), Pa.....	M.	June 9, 1930
WILSON, LeRoy Zimmerman. Vice-Pres., Dominion Bridge Co., Ltd., Montreal, Que., Canada.....	Assoc. M.	April 7, 1930
WILSON, Ronald Munro. Topographic Engr., U. S. Geological Survey, Washington, D. C.....	M.	May 12, 1930
WILSON, Ross Ellsworth. Field Engr., Firestone Tire & Rubber Co. (Res., 2210 East 70th St.), Chicago, Ill.....	M.	May 12, 1930
WIRSCHING, Carl Bernardino. Executive Engr., Southern Cali- fornia Rock Products Assoc. (Res., 222 North Manhattan Pl.), Los Angeles, Calif.....	Assoc. M.	June 9, 1930
WOOD, Clyde Matheson. Engr., Executive Div., "Automatic" Sprinkler Corporation of America, 928 Standard Bank Bldg., Cleveland, Ohio.....	M.	Oct. 11, 1920
WOODBIDGE, Cyril James. Draftsman, Jackson & Moreland; 61 West 83d St., New York, N. Y.....	M.	April 7, 1930
WOODY, Robert Paul. 3225 Lipscomb St., Fort Worth, Tex.....	Jun.	Feb. 10, 1930
WOPAT, John William. Cons. Engr., Diversified Investment, Inc., 406 West 34th St. (Res., 7318 Mercer), Kansas City, Mo.....	Jun.	June 9, 1930
WRIGHT, Charles Nicholson. City Engr. of San Gabriel; (Wright Eng. Co.), 368 Pacific Elec. Bldg., Los Angeles, Calif.....	Assoc. M.	May 12, 1930
WRIGHT, Marshall Sheldon. Sales Engr. and Western Repre- sentative, Aerotopograph Corporation of America, 1800 E St. N. W., Washington, D. C. (Res., 34 Vista Ave., Alexandria, Va.).....	M.	June 9, 1930
WURSTER, Charles Herman, Jr. Vice-Pres., George Kessler Contr. Co., 1733 North Marvine St. (Res., 627 East Allen Lane, Mt. Airy), Philadelphia, Pa.....	Assoc. M.	June 9, 1930
WYATT, William Kirk. Constr. Engr., Reading Co., Philadelphia (Res., 505 Delaware Ave., Lansdale), Pa.....	M.	June 9, 1930
YAGER, Ralph Mark. With Edward J. Cheney, 61 Broadway, New York, N. Y.....	M.	Nov. 11, 1929
YOUNG, William Adams. Pres., Cornell-Young Co., Inc., Box 62, Macon, Ga.....	M.	June 9, 1930
ZAGOREN, Louis Isaac. Chf. Engr., Goldsmith Metal Lath Co., Cincinnati (Res., Terrace and Rugby Aves., Terrace Park), Ohio.....	Assoc. M.	Mar. 10, 1930

## Reinstatements.

MEMBERS	Date of Reinstatement.
DOCKWEILER, John Henry.....	April 16, 1930

## Resignations

MEMBERS	Date of Resignation.
ANTIBUS, Roy.....	April 16, 1930
BLACK, Dudley Frank.....	June 10, 1930
JUNIORS	
COLEMAN, Theodore Cleaveland.....	April 24, 1930
McFADDEN, Richard Rowell.....	April 7, 1930
SNYDER, James Sinclair.....	April 9, 1930
YOUNG, William Nelson.....	April 8, 1930

## Deaths

- AFFELDER, Louis Jacob. Elected Junior, February 4, 1896; Associate Member, June 5, 1901; Member, June 5, 1906; died April 8, 1930.
- ASH, Louis Russell. Elected Associate Member, December 5, 1906; Member, September 6, 1910; died April 7, 1930.
- BENT, Stedman. Elected Affiliate, December 2, 1902; died November 26, 1929.
- CHRISTHILF, August Ewaldt. Elected Member, September 9, 1919; died June 26, 1930.
- COOLEY, Maurice Wurtz. Elected Associate Member, March 7, 1894; Member, December 3, 1902; died April 27, 1930.
- DANFORTH, Frank Allison. Elected Associate Member, October 15, 1923; Member, April 22, 1929; died February 17, 1930.
- DONNELLY, Charles Edward. Elected Associate Member, August 28, 1922; died March 2, 1930.
- DURYEA, Edwin. Elected Junior, February 2, 1887; Associate Member, September 4, 1895; Member, February 2, 1898; died April 1, 1930.
- EVERETT, Percival Herbert. Elected Member, December 31, 1913; died May 24, 1930.
- HARVEY, Eugene Cochrane. Elected Associate Member, June 10, 1929; died February 12, 1930.
- HEMPHILL, Robert Grier. Elected Associate Member, October 15, 1923; died June 19, 1930.
- HOGELAND, Albert Harrison. Elected Member, May 2, 1906; died May 13, 1930.
- HOXIE, Richard Leveridge. Elected Member, June 2, 1886; died April 29, 1930.
- McCOY, Laurence Francis. Elected Member, December 5, 1911; died January 13, 1930.
- MANDIGO, Clark Rogers. Elected Associate Member, September 3, 1912; Member, January 20, 1920; died March 25, 1930.
- MITCHELL, Arthur Knox. Elected Associate Member, November 28, 1916; died May 5, 1930.
- PARDEE, Robert McKnight. Elected Associate Member, May 19, 1924; died April 10, 1930.
- PORTER, Waldo Justin Bickle. Elected Associate Member, December 5, 1927; died February 6, 1930.
- REED, William Boardman. Elected Associate Member, February 6, 1895; Member, May 1, 1909; died June 19, 1930.
- RHODES, Claude Irvin. Elected Junior, March 5, 1907; Associate Member, March 1, 1910; Member, January 17, 1927; died May 11, 1930.
- RUSSELL, Richard Lord. Elected Junior, February 5, 1895; Associate Member, April 3, 1901; Member, September 4, 1906; died March 16, 1930.
- THEBAN, John Gerard. Elected Associate Member, March 3, 1897; died May 13, 1930.
- THOMPSON, Benjamin. Elected Member, July 3, 1889; died February 8, 1930.
- VAN KEUREN, Charles Augustus. Elected Member, May 3, 1905; died April 21, 1930.
- VAN SANT, Robert Lawrence. Elected Member, September 3, 1884; died April 4, 1930.

## Total Membership of the Society, July 1, 1930

Members .....	5 763
Associate Members.....	6 142
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Corporate Members.....	11 905
Honorary Members.....	17
Juniors .....	2 413
Affiliates .....	140
Fellows .....	7
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Total.....	14 482

MEMBERS—(Continued)

WIEMAN, George Arnold. Cons. Engr. (Sandlass & Wieman),  
 (Res., 2528 Maryland Ave.), Baltimore, Md..... M.  
 WILCOX, Albert James. Structural Engr., H. G. Balcom, New

April 7, 1930

AFR  
 ASH



## APPLICATIONS FOR ADMISSION AND FOR TRANSFER

The Constitution provides that the Board of Direction shall elect or reject all applicants for *Admission* or for *Transfer*, and, in order to determine justly the eligibility of each candidate, the Board must depend largely upon the Membership for information.

This list is issued to members in every grade for the purpose of securing all such available information, and every member is urged to scan carefully each monthly list of candidates and to furnish the Board with data in regard to any applicant which may aid in determining his eligibility. It is the *Duty* of all *Members* to the *Profession* to assist the Board in this manner.

It is especially urged, in communications concerning applicants, that errors in the record be pointed out and a *Definite Recommendation as to the Proper Grading in Each Case* be given, inasmuch as the grading must be based upon the opinions of those who know the applicant personally, as well as upon the nature and extent of his professional experience. If facts exist derogatory to the personal character or to the professional reputation of an applicant, they should be promptly communicated to the Board. *Communications Relating to Applicants are considered by the Board as Strictly Confidential.*

The Board of Direction will not consider the applications herein contained from residents of North America until the expiration of thirty (30) days, and from non-residents of North America until the expiration of ninety (90) days from August 1, 1930.

### MINIMUM REQUIREMENTS FOR ADMISSION

Grade	General Requirement	Age	Length of Active Practice	Responsible charge of work
Member	Qualified to design as well as to direct work	32 years	12 years*	5 years
Associate Member	Qualified to direct work	25 years	8 years*	1 year
Junior	Qualified for sub-professional work	18 years†	4 years*	
Affiliate	Qualified by scientific acquirements or practical experience to co-operate with engineers			
Fellow	Contributor to the permanent funds of the Society			

AFFELDER, Louis Jacob. Elected Junior, February 4, 1896; Associate Member, June 5, 1901; Member, June 5, 1906; died April 8, 1930.

ASH, Louis Russell. Elected Associate Member, December 5, 1906; Member, September 6,